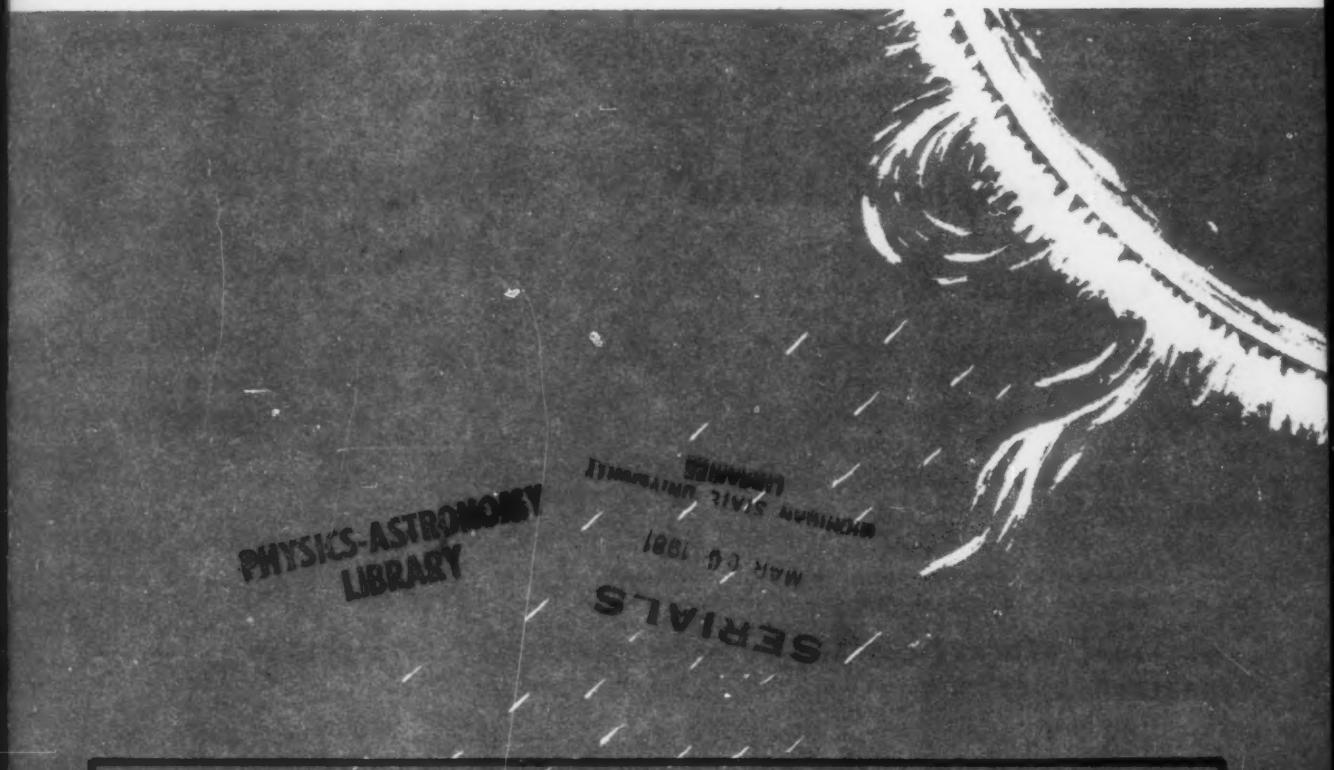
JANUARY 1981 NUMBER 437 -- Part I

Solar-Geophysical Data prompt reports

Data for December 1980, November 1980 & Late Data

Explanation of Data Reports Issued as Number 426 (Supplement) February 1980



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Solar - Geophysical Data

NO. 437 JANUARY 1981

Part I (Prompt Reports)

DATA FOR
DECEMBER 1980
NOVEMBER 1980

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Solar-Geophysical Data, 426 Part I (or Part II), pages, February 1980, U.S. Department of Commerce (Boulder, Colorado, U.S.A. 80303).

SOLAR-GEOPHYSICAL DATA

No. 437

Issued in two parts

Helen E. Coffey, Editor

J. Virginia Lincoln, Chief
Solar-Terrestrial Physics Division

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Notes:

"426A 50" listed under 1979 Dec means that the sunspot drawings for Dec 1979 were contained in Solar-Geophysical Data Number 426 - Part I, beginning on page 50.

A = Part I, B = Part II.

----- = no data available.
blank = data not yet received.

DECEMBER 1980 DATA

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ALERT PERIODS

INTERNATIONAL URSIGRAM AND WORLD DAYS SERVICE

DECEMBER 1980

PRESTO MESSAGES (THE RAPID REPORT OF MAJOR EVENTS)

12 DECEMBER 1980 PRESTO KAKIOKA 12/0045Z MAGSTORM 11/1009Z
15 DECEMBER 1980 PRESTO BOULDER 15/1933Z SOFLARE M5/2B N11E28 15/1926Z DURATION 40 MINUTES
16 DECEMBER 1980 PRESTO BOULDER 16/1405Z SOFLARE M4/2B N06E24 16/1012Z DURATION 41 MINUTES
16 DECEMBER 1980 PRESTO BOULDER 16/1405Z SOFLARE M5/2B N13E25 16/1155Z DURATION 23 MINUTES
17 DECEMBER 1980 PRESTO BOULDER 17/1254Z SOFLARE M4/2B N10E07 17/1207Z DURATION 64 MINUTES
18 DECEMBER 1980 PRESTO TOYOKAWA 18/0200Z TENFLARE 150 FLUX UNITS 18/0140Z DURATION 10 MINUTES
19 DECEMBER 1980 PRESTO BOULDER 19/1446Z A SUDDEN MAGNETIC IMPULSE OBSERVED AT 19/0457Z FOLLOWED BY K=4 0300-0600Z. STRONG BAY OBSERVED AT 1340Z WITH k=7. MAJOR STORM CONDITIONS ARE EXPECTED TO BE SHORT-LIVED.
29 DECEMBER 1980 PRESTO BOULDER 29/1251Z TENFLARE 470 FLUX UNITS 29/1032Z DURATION 2 MINUTES
29 DECEMBER 1980 PRESTO BOULDER 29/1329Z SOFLARE M2/2B S22W15 29/1238Z DURATION 40 MINUTES

SUMMARY OF THE GEOALERT WWA MESSAGES

Message serial number	Date of issue	Date of observation	Wolf number	10 cm solar flux	A index	Active Regions: Location Lat-Long	Flares: Total	Flares: M	Flares: X	Outstanding events	Forecasts: Date	Forecasts: Location Lat-Long	Forecasts: Desc*	Alert Situations
336	01	30	254	223	014	S20W79	0	0	0		01	S20W79	Q	SOLQUIET
						N20W53	2	0	0			N20W53	Q	MAGQUIET
						S34W38	2	0	0			S34W38	Q	
						N15W36	0	0	0			N15W36	E	
						N20W34	2	0	0			N20W34	Q	
						N14W08	2	0	0			N14W08	E	
						N19E09	0	0	0			N19E09	Q	
						N24E19	0	0	0			N24E19	Q	
						S10E28	4	0	0			S10E28	E	
						N14E30	0	0	0			N14E30	Q	
						S10E38	1	0	0			S10E38	Q	
						S20E67	2	0	0			S20E67	Q	
						N25E76	0	0	0			N25E76	Q	
337	02	01	230	229	019	S19W90	0	0	0		02	S19W90	Q	SOLQUIET
						N20W66	0	0	0			N20W66	Q	MAGQUIET
						N17W50	1	0	0			N17W50	E	
						N21W46	2	0	0			N21W46	Q	
						N11W24	2	0	0			N11W24	Q	
						N19W04	0	0	0			N19W04	Q	
						N24E07	2	0	0			N24E07	E	
						N12E14	0	0	0			N12E14	Q	
						S11E14	5	0	0			S11E14	E	
						S10E25	1	0	0			S10E25	Q	
						S19E55	0	0	0			S19E55	E	
						N26E62	0	0	0			N26E62	Q	
						S06E62	0	0	0			S06E62	Q	
338	03	02	277	219	007	N21W80	0	0	0		03	N21W80	Q	SOLQUIET
						N17W65	6	0	0			N17W65	E	MAGQUIET
						N21W57	1	0	0			N21W57	Q	
						N13W36	2	0	0			N13W36	Q	
						N25W21	0	0	0			N25W21	Q	
						N19W16	0	0	0			N19W16	Q	
						N23W10	2	0	0			N23W10	E	
						S10E01	10	3	0			S10E01	A	
						N11E02	1	0	0			N11EG2	Q	
						S10E12	3	0	0			S10E12	E	
						S11E24	0	0	0			S11E24	Q	
						N15E34	0	0	0			N15E34	Q	
						S19E42	0	0	0			S19E42	Q	
						S28E44	0	0	0			S28E44	Q	
						N26E48	0	0	0			N26E48	Q	
						S06E48	0	0	0			S06E48	Q	
						S12E73	2	0	0			S12E73	Q	
339	04	03	298	204	015	N17W79	3	0	0		04	N17W79	E	SOLQUIET
						N22W71	0	0	0			N22W71	Q	MAGQUIET
						N13W52	0	0	0			N13W52	Q	
						N18W29	0	0	0			N18W29	Q	
						N23W21	5	0	0			N23W21	E	
						S10W14	8	0	0			S10W14	A	
						N11W13	1	0	0			N11W13	Q	
						S09W02	2	0	0			S09W02	E	
						N11E02	0	0	0			N11E02	Q	
						S11E08	2	0	0			S11E08	Q	
						N14E20	0	0	0			N14E20	Q	
						S15E22	0	0	0			S15E22	Q	
						S29E29	1	0	0			S29E29	Q	
						S06E32	0	0	0			S06E32	Q	
						N26E35	0	0	0			N26E35	Q	
						S13E62	0	0	0			S13E62	E	
340	05	04	247	205	010	N17W92	1	0	0		05	N17W92	E	SOLQUIET
						N13W64	1	0	0			N13W64	Q	MAGQUIET
						N17W40	0	0	0			N17W40	Q	
						N22W32	0	0	0			N22W32	E	
						S11W26	9	0	0			S11W26	A	
						N10W24	0	0	0			N10W24	Q	
						S09W15	1	0	0			S09W15	E	
						N11W11	0	0	0			N11W11	Q	
						S12W05	0	0	0			S12W05	E	
						N15E03	0	0	0			N15E03	Q	
						S15E09	0	0	0			S15E09	Q	
						S29E16	0	0	0			S29E16	Q	
						N25E22	0	0	0			N25E22	Q	
						S13E48	0	0	0			S13E48	Q	
341	06	05	136	192	005	N13W80	0	0	0		06	N13W80	Q	SOLQUIET
						N22W47	0	0	0			N22W47	E	MAGQUIET
						S11W41	3	0	0			S11W41	E	
						S10W30	1	0	0			S10W30	E	
						S12W18	0	0	0			S12W18	Q	
						S28E02	1	0	0			S28E02	Q	
						N25E09	0	0	0			N25E09	Q	
						S13E34	3	0	0			S13E34	E	
342	07	06	144	176	005	N12W94	0	0	0		07	N12W94	Q	SOLQUIET
						N22W60	0	0	0			N22W60	E	MAGQUIET

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						S11W53	2	0	0			S11W53	A	
						S11W42	0	0	0			S11W42	E	
						S29W10	0	0	0			S29W10	Q	
						N25W03	0	0	0			N25W03	Q	
						S14E21	0	0	0			S14E21	E	
343	08	07	103	182	005	N22W72	0	0	0		08	N22W72	Q	SOLQUIET
						S11W67	1	0	0			S11W67	E	MAGQUIET
						S10W57	0	0	0			S10W57	Q	
						N26W16	0	0	0			N26W16	Q	
						S12E11	1	0	0			S12E11	Q	
						N15E59	3	1	0			N15E59	E	
						S18E70	0	0	0			S18E70	Q	
344	09	08	140	175	007	N22W87	0	0	0		09	N22W87	E	SOLQUIET
						S10W81	1	0	0			S10W81	E	MAGQUIET
						S10W70	3	0	0			S10W70	E	
						N26W30	0	0	0			N26W30	Q	
						S12W05	0	0	0			S12W05	E	
						S06E23	2	0	0			S06E23	E	
						S13E25	0	0	0			S13E25	Q	
						S31E28	0	0	0			S31E28	Q	
						N15E48	3	0	0			N15E48	E	
						S18E58	0	0	0			S18E58	E	
345	10	09	205	181	009	S11W93	1	0	0		10	S11W93	E	SOLQUIET
						S10W80	0	0	0			S10W80	E	MAGQUIET
						N26W42	0	0	0			N26W42	Q	
						S11W18	3	0	0			S11W18	Q	
						S10W05	0	0	0			S10W05	Q	
						S06E11	3	0	0			S06E11	E	
						S12E12	3	0	0			S12E12	Q	
						S31E14	0	0	0			S31E14	Q	
						S07E18	0	0	0			S07E18	Q	
						N15E35	4	0	0			N15E35	Q	
						N10E36	0	0	0			N10E36	Q	
						S17E43	5	0	0			S17E43	E	
						N23E50	0	0	0			N23E50	Q	
						S34E69	0	0	0			S34E69	Q	
346	11	10	212	186	009	N25W55	0	0	0		11	N25W55	Q	SOLQUIET
						S12W33	0	0	0			S12W33	Q	MAGQUIET
						S12W01	1	0	0			S12W01	E	
						S05W01	0	0	0			S05W01	Q	
						S07E07	1	0	0			S07E07	Q	
						N24E12	0	0	0			N24E12	Q	
						N15E22	4	0	0			N15E22	Q	
						N10E24	1	0	0			N10E24	Q	
						S17E28	0	0	0			S17E28	Q	
						N16E31	0	0	0			N16E31	Q	
						N23E36	0	0	0			N23E36	Q	
						S33E56	0	0	0			S33E56	Q	
						N14E76	0	0	0			N14E76	Q	
347	12	11	221	215	012	N25W69	0	0	0	Presto Kakioka 12/0045Z Magstorm 11/1009Z	12	N25W69	Q	SOLALERT 12/XX
						S13W46	0	0	0			S13W46	Q	MAGALERT 12
						S12W14	0	0	0			S12W14	Q	
						S06W12	1	0	0			S06W12	Q	
						N15E09	8	1	0			N15E09	E	
						N10E09	0	0	0			N10E09	Q	
						S16E15	0	0	0			S16E15	Q	
						N16E17	0	0	0			N16E17	Q	
						N24E22	0	0	0			N24E22	Q	
						S33E46	0	0	0			S33E46	Q	
						N15E66	1	0	0			N15E66	Q	
						S15E66	0	0	0			S15E66	Q	
						N07E77	3	2	0			N07E77	A	
348	13	12	273	223	011	N26W84	0	0	0		13	N26W84	Q	SOLALERT 13/15
						S13W59	0	0	0			S13W59	Q	MAGNIL
						S12W29	0	0	0			S12W29	E	
						S07W26	1	0	0			S07W26	Q	
						N10W06	0	0	0			N10W06	Q	
						N15W06	6	2	0			N15W06	A	
						S16E01	0	0	0			S16E01	Q	
						N16E04	0	0	0			N16E04	Q	
						S33E31	1	0	0			S33E31	Q	
						N16E53	4	1	0			N16E53	Q	
						S16E53	0	0	0			S16E53	Q	
						N08E63	7	3	0			N08E63	A	
						N15E68	0	0	0			N15E68	Q	
						S07E74	0	0	0			S07E74	Q	
349	14	13	312	252	005	S13W71	1	0	0		14	S13W71	Q	SOLALERT 14/16
						S12W41	2	0	0			S12W41	E	MAGQUIET
						S07W40	0	0	0			S07W40	Q	
						N13W17	8	0	0			N13W17	A	
						N09W18	0	0	0			N09W18	Q	
						S16W12	0	0	0			S16W12	Q	

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						S12W10	0	0	0			S12W10	Q	
						S33E20	0	0	0			S33E30	Q	
						S17E39	1	0	0			S17E39	Q	
						N16E42	2	0	0			N16E42	Q	
						N07E52	8	0	0			N07E52	A	
						N14E57	2	0	0			N14E57	Q	
						S09E61	0	0	0			S09E61	Q	
						N06E71	0	0	0			N06E71	Q	
350	15	14	251	261	004	S11W56	1	0	0		15	S11W56	Q	SOLALERT 15/17
						S07W53	0	0	0			S07W53	Q	MAGQUIET
						N09W34	0	0	0			N09W34	Q	
						N13W31	1	0	0			N13W31	A	
						S12W25	0	0	0			S12W25	Q	
						S16W24	0	0	0			S16W24	Q	
						N17E26	1	0	0			N17E26	Q	
						S16E28	1	0	0			S16E28	Q	
						N07E38	11	1	0			N07E38	A	
						N15E44	5	1	0			N15E44	E	
						S08E49	2	0	0			S08E49	E	
						N07E58	1	0	0			N07E58	Q	
351	16	15	279	264	009	S11W69	0	0	0	Presto Boulder	16	S11W69	Q	SOLALERT 16/18
						S07W66	1	0	0	15/1933Z Soflare		S07W66	Q	MAGQUIET
						N09W48	0	0	0	M5/2B 15/1926Z		N09W48	Q	
						N14W43	2	0	0	Duration 40 Minutes		N14W43	E	
						S13W38	0	0	0			S13W38	Q	
						S16W38	0	0	0			S16W38	Q	
						N16E14	1	0	0			N16E14	E	
						S17E15	2	0	0			S17E15	Q	
						N17E22	0	0	0			N17E22	Q	
						N07E25	12	2	0			N07E25	A	
						N14E33	4	1	0			N14E33	E	
						S09E36	1	0	0			S09E36	Q	
						N07E46	0	0	0			N07E46	Q	
						S14E68	0	0	0			S14E69	Q	
352	17	16	322	282	016	S09W83	0	0	0	Presto Boulder	17	S09W83	Q	SOLALERT 17/19
						N09W63	0	0	0	16/1405Z Soflare		N09W63	Q	MAGQUIET
						N13W56	3	0	0	M4/2B N06E24		N13W56	E	
						S16W55	0	0	0	16/1012Z Duration		S16W55	Q	
						N15E01	0	0	0	41 Minutes. Soflare		N15E01	Q	
						S16E01	4	1	0	M5/2B N13E25		S16E01	Q	
						N17E09	0	0	0	16/1155Z Duration		N17E09	Q	
						N07E12	13	4	0	23 Minutes.		N07E12	A	
						N14E19	7	1	0			N14E19	E	
						S08E22	0	0	0			S08E22	Q	
						N08E33	0	0	0			N08E33	Q	
						S15E57	1	0	0			S15E57	Q	
						N04E74	1	0	0			N04E74	Q	
						N11E76	0	0	0			N11E76	Q	
353	18	17	263	189	003	N14W69	2	0	0	Presto Boulder	18	N14W69	E	SOLALERT 18
						S16W13	0	0	0	17/1254Z Soflare		S16W13	E	MAGQUIET
						N07W02	5	0	0	M4/2B N10E07		N07W02	A	
						N13E07	1	1	0	17/1207Z Duration		N13E07	E	
						S09E09	0	0	0	64 Minutes		S09E09	Q	
						N07E19	0	0	0			N07E19	Q	
						S16E44	2	1	0			S16E44	Q	
						N03E61	0	0	0			N03E61	Q	
						N10E61	0	0	0			N10E61	Q	
						S07E71	0	0	0			S07E71	Q	
354	19	18	234	264	010	N15W83	2	0	0	Presto Toyokawa	19	N15W83	Q	SOLALERT 19/20
						S16W24	0	0	0	Tenflare 150 Flux		S16W24	Q	MAGQUIET
						N08W16	6	1	0	Units 18/0140Z		N08W16	E	
						N14W07	3	0	0	Duration 10		N14W07	E	
						S09W03	1	0	0	Minutes		S09W03	Q	
						N08E07	0	0	0			N08E07	Q	
						S16E32	2	0	0			S16E32	Q	
						N04E47	0	0	0			N04E47	Q	
						N10E48	0	0	0			N10E48	Q	
						S07E60	0	0	0			S07E60	Q	
355	20	19	187	246	050	S17W38	0	0	0	Presto Boulder	20	S17W38	Q	SOLALERT 20/XX
						N08W28	2	0	0	19/1446Z A Sudden		N08W28	E	MAGALERT MINOR 20/XX
						N14W19	2	0	0	Magnetic Impulse		N14W19	E	
						S09W17	0	0	0	observed 19/0457Z		S09W17	Q	
						N07W08	0	0	0	followed by K=4		N07W08	Q	
						S17E21	0	0	0	0300-0600Z.Strong		S17E21	Q	
						N09E33	0	0	0	Bay observed at		N09E33	Q	
						N04E34	1	0	0	1340Z with K=7.		N04E34	Q	
						S07E47	1	0	0	Major Geomagnetic		S07E47	E	
						N16E70	0	0	0	Storm conditions		N16E70	Q	
										are expected to be				
										short-lived.				
356	21	20	253	248	016	S18W50	4	0	0		21	S18W50	E	SOLNIL
						N13W33	5	0	0			N13W33	E	MAGALERT 21
						S09W31	0	0	0			S09W31	Q	

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						N06W22	0	0	0			N06W22	Q	
						N07W22	4	0	0			N07W22	E	
						S17E09	1	0	0			S17E09	Q	
						N09E20	0	0	0			N09E20	Q	
						N18E21	0	0	0			N18E21	Q	
						N04E22	0	0	0			N04E22	Q	
						S17E26	0	0	0			S17E26	Q	
						S03E33	0	0	0			S03E33	Q	
						S07E34	2	0	0			S07E34	Q	
						N17E59	0	0	0			N17E59	Q	
357	22	21	248	232	016	S18W64	2	0	0		22	S18W64	E	SOLQUIET
						N06W56	2	0	0			N06W56	E	MAGNIL
						S09W45	0	0	0			S09W45	Q	
						N13W44	6	0	0			N13W44	E	
						S16W06	3	0	0			S16W06	Q	
						N09E06	0	0	0			N09E06	Q	
						N19E07	0	0	0			N19E07	Q	
						N14E08	0	0	0			N14E08	Q	
						S16E12	1	0	0			S16E12	Q	
						S06E20	0	0	0			S06E20	E	
						N04E21	0	0	0			N04E21	Q	
						N06E37	0	0	0			N06E37	Q	
						N17E44	1	0	0			N17E44	Q	
						N29E62	1	0	0			N29E62	Q	
358	23	22	230	239	010	N06W69	0	0	0		23	N06W69	E	SOLQUIET
						S10W60	0	0	0			S10W60	Q	MAGQUIET
						N12W56	3	0	0			N12W56	E	
						N05W51	2	0	0			N05W51	Q	
						S17W18	0	0	0			S17W18	Q	
						N20W06	0	0	0			N20W06	Q	
						S17E01	1	0	0			S17E01	Q	
						N04E07	0	0	0			N04E07	Q	
						N05W08	0	0	0			N05W08	Q	
						S06E08	1	0	0			S06W08	E	
						N18E32	0	0	0			N18E32	Q	
						N29W49	1	0	0			N29W49	Q	
						S26E75	0	0	0			S26E75	Q	
359	24	23	230	234	007	N07W81	0	0	0		24	N07W81	Q	SOLQUIET
						S10W74	0	0	0			S10W74	Q	MAGQUIET
						N13W68	3	0	0			N13W68	E	
						N06W63	0	0	0			N06W63	Q	
						S17W30	2	0	0			S17W30	Q	
						N06W20	0	0	0			N06W20	Q	
						S17W13	0	0	0			S17W13	Q	
						N05W06	0	0	0			N05W06	Q	
						S06W05	0	0	0			S06W05	Q	
						N18E20	1	0	0			N18E20	Q	
						N30E40	1	0	0			N30E40	Q	
						N24E66	0	0	0			N24E66	Q	
						S26E66	1	0	0			S26E66	Q	
						S08E75	1	1	0			S08E75	Q	
						S29E76	0	0	0			S29E76	Q	
360	25	24	264	231	002	S10W85	1	0	0		25	S10W85	Q	SOLQUIET
						N05W74	0	0	0			N05W74	Q	MAGQUIET
						N15W45	0	0	0			N15W45	Q	
						S17W42	0	0	0			S17W42	Q	
						N05W32	0	0	0			N05W32	Q	
						N18W31	0	0	0			N18W31	Q	
						S17W26	1	0	0			S17W26	Q	
						N04W21	0	0	0			N04W21	Q	
						S05W19	0	0	0			S05W19	Q	
						S23W01	0	0	0			S23W01	Q	
						N18E06	0	0	0			N18E06	Q	
						S15E37	0	0	0			S15E37	Q	
						S23E46	3	0	0			S23E46	Q	
						N26E55	0	0	0			N26E55	Q	
						S27E60	1	0	0			S27E60	Q	
						S07E66	4	0	0			S07E66	E	
						N25E77	0	0	0			N25E77	Q	
						N30E28	0	0	0			N30E28	Q	
361	26	25	316	228	005	N06W92	0	0	0		26	N06W92	Q	SOLQUIET
						S10W73	0	0	0			S10W73	Q	MAGQUIET
						S17W57	0	0	0			S17W57	Q	
						N16W56	0	0	0			N16W56	Q	
						N05W48	1	0	0			N05W48	Q	
						N19W45	1	0	0			N19W45	Q	
						S17W39	1	0	0			S17W39	Q	
						N04W34	0	0	0			N04W34	Q	
						S05W34	0	0	0			S05W34	Q	
						S22W14	0	0	0			S22W14	Q	
						N18W07	0	0	0			N18W07	Q	
						N29E16	0	0	0			N29E16	Q	
						S15E24	0	0	0			S15E24	Q	
						S23E34	7	0	0			S23E34	Q	

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						N26E45	0	0	0			N26E45	Q	
						S28E50	0	0	0			S28E50	Q	
						N25E54	0	0	0			N25E54	Q	
						S07E54	3	0	0			S07E54	E	
						N26E64	0	0	0			N26E64	Q	
362	27	26	311	228	006	S09W87	0	0	0		27	S09W87	Q	SOLQUIET
						S17W73	0	0	0			S17W73	Q	MAGQUIET
						N06W63	1	0	0			N06W63	Q	
						S17W54	0	0	0			S17W54	Q	
						S05W48	0	0	0			S05W48	Q	
						N05W47	0	0	0			N05W47	Q	
						S21W29	0	0	0			S21W29	Q	
						N19W21	0	0	0			N19W21	Q	
						N09E03	1	0	0			N09E03	Q	
						S15E08	0	0	0			S15E08	Q	
						S23E22	5	0	0			S23E22	Q	
						N16E29	0	0	0			N16E29	Q	
						N26E31	1	0	0			N26E31	Q	
						S28E36	0	0	0			S28E36	Q	
						S07E39	2	0	0			S07E39	E	
						N26E40	2	0	0			N26E40	Q	
						N26E50	0	0	0			N26E50	Q	
363	28	27	279	228	012	S17W88	0	0	0		28	S17W88	Q	SOLQUIET
						S05W62	0	0	0			S05W62	Q	MAGQUIET
						N05W61	0	0	0			N05W61	Q	
						S22W43	0	0	0			S22W43	Q	
						N18W34	0	0	0			N18W34	Q	
						N29W11	0	0	0			N29W11	Q	
						S15W03	0	0	0			S15W03	Q	
						S24E09	7	1	0			S24E09	E	
						N17E15	0	0	0			N17E15	Q	
						N26E17	1	0	0			N26E17	Q	
						S28E24	0	0	0			S28E24	Q	
						N25E26	2	0	0			N25E26	Q	
						S07E28	2	0	0			S07E28	E	
						N26E38	0	0	0			N26E38	Q	
						S08E56	0	0	0			S08E56	Q	
364	29	28	267	244	007	S08W75	0	0	0		29	S08W75	Q	SOLQUIET
						N05W74	0	0	0			N05W74	Q	MAGQUIET
						N18W46	0	0	0			N18W46	Q	
						N29W23	0	0	0			N29W23	Q	
						S16W18	0	0	0			S16W18	Q	
						S24W04	8	1	0			S24W04	E	
						N16E03	6	0	0			N16E03	Q	
						N25E05	0	0	0			N25W05	Q	
						S30E12	0	0	0			S30E12	Q	
						N25E15	0	0	0			N25E15	E	
						S08E16	0	0	0			S08E16	E	
						N25E26	0	0	0			N25E26	Q	
						S09E45	0	0	0			S09E45	Q	
						N10E72	0	0	0			N10E72	Q	
365	30	29	312	225	008	N03W92	0	0	0	Presto Boulder	30	N03W92	Q	SOLQUIET
						N18W61	0	0	0	29/1251Z Tenflare		N18W61	Q	MAGQUIET
						N29W35	0	0	0	470 Flux Units		N29W35	Q	
						S15W33	0	0	0	29/1032Z Duration		S15W33	Q	
						S24W19	16	3	0	2 Minutes. Presto		S24W19	E	
						N15W12	4	0	0	Boulder 29/1329Z		N15W12	Q	
						N25W09	0	0	0	Soflare M2/2B S22		N25W09	Q	
						S29W01	0	0	0	W15 29/1238Z		S29W01	Q	
						N24E01	0	0	0	Duration 40 Minutes		N24E01	E	
						S07E01	2	0	0			S07E01	E	
						N25E12	0	0	0			N25E12	Q	
						S08E30	0	0	0			S08E30	Q	
						N11E58	0	0	0			N11E58	Q	
						N08E69	0	0	0			N08E69	Q	
366	31	30	254	217	012	N18W74	1	0	0		31	N18W74	Q	SOLQUIET
						N29W50	0	0	0			N29W50	Q	MAGQUIET
						S23W32	6	0	0			S23W32	E	
						N14W26	6	0	0			N14W26	E	
						N26W22	1	0	0			N26W22	Q	
						S30W14	0	0	0			S30W14	Q	
						N24W12	0	0	0			N24W12	Q	
						S07W11	3	0	0			S07W11	E	
						N25W01	0	0	0			N25W01	Q	
						S09E15	0	0	0			S09E15	Q	
						N10E45	0	0	0			N10E45	Q	
						N09E55	0	0	0			N09E55	Q	
001	01	31	234	206	010	N19W91	0	0	0		01	N19W91	Q	SOLQUIET
						N13W58	1	0	0			N13W58	Q	MAGQUIET
						S23W45	1	0	0			S23W45	E	
						N15W41	2	0	0			N15W41	E	
						N26W35	1	0	0			N26W35	Q	
						N22W28	1	0	0			N22W28	Q	
						S29W27	0	0	0			S29W27	Q	
						S07W26	0	0	0			S07W26	E	
						N24W14	0	0	0			N24W14	Q	
						N19W04	0	0	0			N19W04	Q	
						S07E01	0	0	0			S07E01	E	
						N10E31	0	0	0			N10E31	Q	
						N10E44	0	0	0			N10E44	Q	

* Q=Quiet E=Eruptive A=Active P=Proton C=Caution D=Doubtful O.G.=Other Groups MF=Major Flare

RELATIVE SUNSPOT NUMBERS

ZURICH, R_z

1980 PROVISIONAL

DAY	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
1	153	208	181	185	121	152	101	78	208	151	183	171
2	158	187	160	145	149	124	108	63	226	135	210	176
3	148	185	151	133	140	120	97	65	232	139	204	152
4	173	182	136	123	166	141	85	65	233	121	211	146
5	190	178	130	154	192	150	96	53	188	96	201	152
6	207	215	132	185	145	131	98	72	179	116	172	132
7	218	248	120	208	147	149	97	64	136	135	175	108
8	225	238	101	199	157	156	87	98	140	101	201	124
9	262	172	103	229	168	164	78	125	108	106	179	135
10	224	140	69	214	144	168	86	130	112	235	150	145
11	245	148	67	245	142	172	87	101	125	260	144	148
12	210	135	70	257	143	166	98	174	120	234	120	178
13	181	131	71	259	150	161	105	172	133	197	103	185
14	178	146	68	203	166	136	128	193	100	232	108	213
15	146	168	52	182	157	129	161	192	83	209	92	225
16	166	163	36	154	148	134	190	196	90	187	112	237
17	160	132	67	126	173	129	211	198	93	173	109	198
18	138	122	63	127	215	146	241	195	114	150	113	183
19	118	129	119	134	218	166	213	185	137	137	125	166
20	115	139	108	173	230	179	212	179	150	167	112	171
21	121	114	105	143	233	191	217	152	110	155	107	170
22	123	99	130	122	244	196	201	139	147	164	119	178
23	124	100	149	95	246	198	184	154	150	140	112	177
24	120	122	175	112	256	193	155	122	178	127	120	191
25	107	121	176	139	229	179	151	109	160	123	127	200
26	127	152	191	171	220	166	138	101	209	119	140	208
27	120	175	205	156	223	185	117	98	231	134	154	206
28	130	197	221	149	190	188	127	124	101	136	167	206
29	122	181	191	145	170	149	110	150	166	173	148	208
30	145		182	130	150	97	108	104	149	170	153	187
31	174		183		138		81	194		167		182
MEAN	162.2	159.3	126.5	166.6	179.7	157.2	135.8	135.4	154.5	162.9	146.5	176.1

1979 YEARLY MEAN = 155.4

DAILY SOLAR FLUX AT 2800 MHz
OTTAWA ARO

FLUX ADJUSTED TO 1 A.U., S_a

1980

DAY	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
1	189.1	212.6*	175.7	181.9	210.5	191.2	160.8*	131.9	213.2*	171.1	226.3	223.0
2	199.9	217.9	172.9	181.1*	223.0	184.0	154.9	131.8	224.5*	167.9*	234.2	213.3
3	211.9*	225.7	178.2*	176.1	221.2	178.8	147.7	133.2	232.1	174.1	241.6	197.9
4	212.4*	231.7	172.7*	184.3*	223.1*	181.5	146.7	136.9	225.1	175.2	249.9*	199.4
5	207.7	218.9	171.8	209.7*	221.9	178.4	152.5*	132.6	215.6*	182.6	263.3*	186.4
6	222.1	221.7	169.4	238.4*	203.5	172.4	150.1	143.2*	210.9	185.3*	273.9*	171.0
7	228.0	223.9*	166.3	236.1*	203.4	165.7*	152.5	142.3	213.0	198.7*	272.7	176.4
8	228.1*	218.7	164.9	241.7	200.2*	172.4*	152.8	146.4	208.9	212.1*	266.2*	169.3
9	248.9*	208.2*	161.3	244.7*	193.6	174.3*	155.2	156.5	189.7	223.4*	255.4*	175.1
10	253.0*	204.6*	153.9	249.0	191.1	176.1	162.3*	173.5	188.7	232.7	257.2*	180.5
11	255.7*	213.7	147.8	249.9	191.4*	182.9	173.3	184.1	188.1	240.7	256.8*	203.5*
12	245.1*	213.7	138.6	245.6	189.5	189.3*	178.8	189.6	178.9	247.8*	233.2*	240.5*
13	221.6	217.9	144.6	232.8	192.9	186.5	196.8	193.3*	171.9	253.3*	226.8	244.2
14	203.8	201.0	141.2	226.3	202.9	188.8*	209.7	191.7*	163.4	251.1	218.8*	253.2
15	200.0	201.2*	139.3	206.1*	199.8	186.4	210.4	191.9	153.8	237.0	205.2*	266.2
16	188.6	200.2	137.3	192.4	202.9*	193.3	235.4*	195.7	159.6	214.9	191.1	273.0
17	186.9	182.8*	142.9	191.9	207.5*	197.4	250.2*	197.7*	158.0	201.1	181.6*	254.8
18	177.5	180.0*	147.4	201.4	214.3*	207.6	249.8*	204.3*	154.4	200.6	174.9	255.1
19	164.4	177.3	162.3	214.5*	234.2	219.8*	255.2*	201.4	160.1*	203.3	172.4	238.5
20	156.5	174.7	162.1	215.8	244.7*	227.9*	250.0	193.0	167.5	200.5	161.6	235.9*
21	153.4	169.6	162.4	207.7	252.6	228.0	254.0	194.1	159.6	204.2	161.8	224.8
22	158.2*	167.3	162.5	199.2	276.6	250.0*	248.7	178.3*	178.6	205.3*	171.4	231.2
23	166.7	160.1	172.4*	186.2	289.5	251.5	235.1	174.1	188.7*	196.1	167.2	226.0
24	171.1*	157.2*	172.4	186.3	290.2	245.9*	222.2	164.3*	191.3	192.5	174.9*	223.6
25	171.3*	165.7	182.5*	185.9	292.0	238.8*	206.4	153.8*	183.8	182.9	176.4*	220.7
26	178.8*	169.0	185.2	186.6	284.2	226.3	197.4	154.6	184.3	180.3*	189.6	220.1
27	190.6*	173.2	195.3*	200.6*	281.2*	212.6	188.4	159.3	183.2*	177.2	185.3	220.3
28	194.8	171.7*	203.5	203.7	280.8*	199.7*	169.5	160.3	185.2	178.2*	191.4	231.5*
29	197.0	176.7*	199.9	203.5*	252.3	188.8	155.3	178.5	178.2*	186.4	206.1*	217.2
30	197.9		194.3*	200.9	222.7	183.4	143.3	191.4*	174.1	201.8	216.3	209.9
31	213.9*		187.2*		200.6		136.5	198.7*		211.5		199.8
MEAN	199.6	195.1	166.5	209.3	229.1	199.3	190.8	170.3	185.9	202.9	213.4	218.8

* adjusted for burst
A = interpolated data point

DAILY SOLAR INDICES

DECEMBER 1980

	YEAR DAY	BARTELS 27-DAY CYCLE NUMBER	SUNSPOT NUMBERS		OBSERVED FLUX	SOLAR FLUX ADJUSTED TO 1 A.U.								
			R_Z	$R_{A'}$	OTTAWA 2800	AFGL 15400	AFGL 8800	AFGL 4995	OTTAWA 2800	AFGL 2695	AFGL 1415	AFGL 606	AFGL 410	AFGL 245
1	336	3	171	161	229.4	521	366	230	223.0	212	157		46	
2	337	4	176	168	219.4				213.3					
3	338	5	152	153	203.8				197.9					
4	339	6	146	119	205.4				199.4					
5	340	7	152	116	192.0				186.4					
6	341	8	132	95	176.1				171.0					
7	342	9	108	100	181.9				176.4					
8	343	10	124	107	174.5	508	332	190	169.3	160	133		39	
9	344	11	135	120	180.5	507	350	195	175.1	174	134		40	
10	345	12	145	130	186.1	500	339	185	180.5	167	138		40	
11	346	13	148	152	210.0*	540	395	223	203.5*	213	150	142	46	20
12	347	14	178	176	248.2*	553	417	270	240.5*	231	158	137	47	39
13	348	15	185	199	252.0				244.2					23
14	349	16	213	211	261.3	537	422	290	253.2	239	167	116	42	28
15	350	17	225	191	274.7	533	421	275	266.2	252	183	137	56	29
16	351	18	237	209	282.0	533	421	275	273.0	252	183	137	56	29
17	352	19	198	173	263.2	543	413	256	254.8	250	172	123	46	79
18	353	20	183	184	263.5	512	399	260	255.1	244	181	126	50	34
19	354	21	166	183	246.4	525	383	224	238.5	224	173	130	37	23
20	355	22	171	177	243.7*	532	393	230	235.9*	228	171	112	53	29
21	356	23	170	163	232.2	532	384	230	224.8	220	164	121	38	23
22	357	24	178	175	238.8				231.2					
23	358	25	177	199	233.7	513	372	223	226.0	205	167	119	45	23
24	359	26	191	181	231.2				223.6					
25	360	27	200	181	228.2	530			220.7		170	158	12	4
26	361	1	208	180	227.6				220.1					
27	362	2	206	188	227.8	525	387	239	220.3	216	160	122	65	11
28	363	3	206	220	239.4*	520	393	248	231.5*	231	172	128	52	26
29	364	4	208	188	224.6	513	374	228	217.2	215	163	122	40	20
30	365	5	187	195	217.1	519	363	208	209.9	201	163	122	41	21
31	366	6	182	180	205.8	511			199.0		155	120	48	20
MEAN			176.1	166.9	225.8	524	385	235	218.8	218	163	128	49	38

*ADJUSTED FOR BURST.

NOTE: DATA GAPS IN AFGL SAGAMORE HILL DATA ARE DUE TO EQUIPMENT PROBLEMS.

OBSERVED AND PREDICTED SOLAR ACTIVITY INDICES

	SUNSPOT NUMBERS						2800 MHz FLUX adjusted to 1 AU	
	Rz		Ra		Rs		Sa	
Date	Monthly Mean	Smoothed	Monthly Mean	Smoothed	Monthly Mean	Smoothed	Monthly Mean	Smoothed
Jan 78	51.9	61	48.8	59	52.6	66	106.1	118
Feb	93.6	64	90.9	61	91.1	69	141.8	122
Mar	76.5	70	73.9	66	89.5	73	140.3	125
Apr	99.7	77	97.5	72	100.5	79	150.5	130
May	82.7	83	79.6	78	99.7	84	149.7	135
Jun	95.1	89	88.0	84	96.5	90	146.8	141
Jul	70.4	97	58.1	92	84.2	97	135.2	147
Aug	58.1	104	48.1	98	64.3	104	116.9	153
Sep	138.2	108	128.1	103	110.4	108	159.6	158
Oct	125.1	111	116.0	105	107.7	111	157.1	160
Nov	97.9	113	92.8	107	98.1	113	148.2	162
Dec	122.7	118	121.0	111	121.6	116	170.0	165
Jan 79	166.6	124	164.4	116	150.2	119	196.5	168
Feb	137.5	131	136.8	123	153.0	124	199.1	172
Mar	138.0	136	132.5	128	136.7	128	184.0	176
Apr	101.5	141	95.8	133	127.0	133	175.0	180
May	134.4	147	121.8	139	120.4	139	168.9	186
Jun	149.5	153	136.4	144	138.9	144	186.0	191
Jul	159.4	156*	140.5	145	123.1	145	171.4	192
Aug	142.2	157*	125.1	144	129.2	145	177.0	192
Sep	188.4	157*	184.0	143	156.5	144	202.3	191
Oct	186.2	158*	178.2	144	171.7	145	216.4	192
Nov	183.3	163*	176.5	149	182.9	149	226.8	196
Dec	176.3	165*	157.6	152	151.0	152	197.2	199
Jan 80	162.2*	165*	146.7	153	153.6	154	199.6	200
Feb	159.3*	163*	131.0	154	148.7	155	195.1	200
Mar	126.5*	162*	111.0	153	117.8	153	166.5	200
Apr	166.6*	159*	148.7	151	164.0	152	209.3	198
May	179.7*	157*	176.5	149	185.4	151	229.1	197
Jun	157.2*	155*	158.8	149	153.2	151	199.3	198
Jul	135.0*	153(+ 6)*	144.7	147	144.1	149	190.8	---
Aug	135.4*	150(±11)*	134.5	144	121.9	146	170.3	---
Sep	154.5*	148(±13)*	151.4	143	138.8	145	185.9	---
Oct	162.9*	148(±15)*	163.0	142	157.1	144	202.9	---
Nov	146.5*	147(±17)*	155.6	141	168.5	143	213.4	---
Dec	176.1*	146(±21)*	166.9	141	174.3	143	218.8	---
Jan 81	---	146(±25)*	---	141	---	143	---	---
Feb	---	146(±25)*	---	140	---	142	---	---
Mar	---	143(±24)*	---	138	---	139	---	---
Apr	---	139(±25)*	---	135	---	136	---	---
May	---	137(±27)*	---	132	---	134	---	---
Jun	---	134(±28)*	---	129	---	131	---	---

*An asterisk denotes a value of the observed monthly mean, or the observed 12-month running mean, or the predicted 12-month average that is based only on preliminary observations of the Zurich relative sunspot number (Rz). Parentheses enclose the 90% confidence limits. Hatched boxes enclose the most recent smoothed values; boxes not shaded enclose predicted values. Ra is the new symbol for R_A'.

SMOOTHED OBSERVED AND PREDICTED SUNSPOT NUMBERS
CYCLE 21

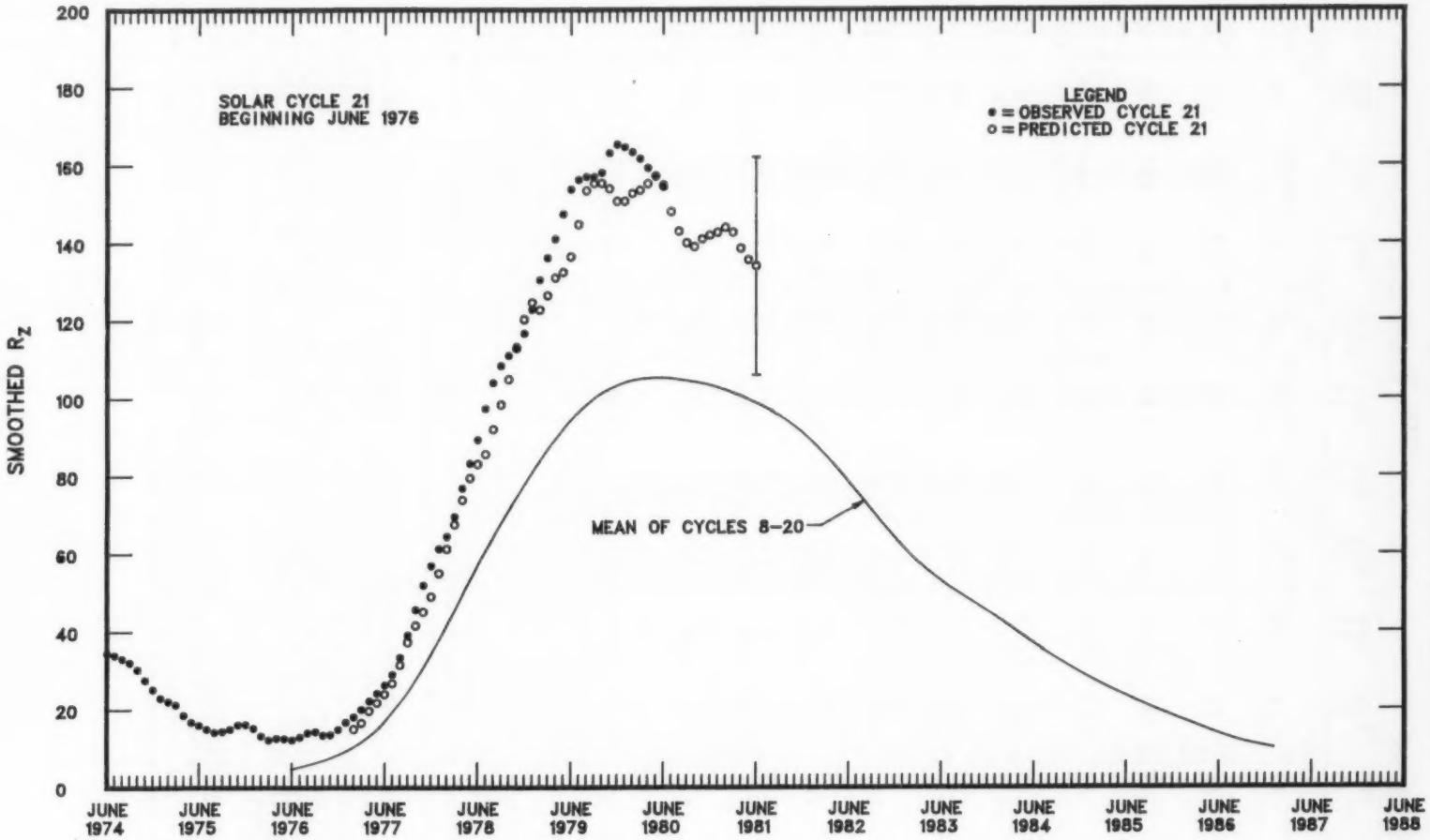
MONTH	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
1976	15	13	12	13	13	12	13	14	14	13	14	15
1977	17	18	20	22	24	26	29	33	39	46	52	57
1978	61	65	70	77	83	89	97	104	108	111	113	118
1979	124	131	137	141	147	153	156	157	157	159	163	165*
1980	165*	163	162	159	157	155	153	150	148	148	147	146
							(6)	(11)	(13)	(15)	(17)	(21)
1981	146	146	143	139	137	134	132	131	130	129	126	122
	(25)	(25)	(24)	(25)	(27)	(28)	(28)	(28)	(27)	(28)	(28)	(27)
1982	119	115	113	110	107	105	101	96	91	86	82	79
	(24)	(24)	(23)	(22)	(20)	(19)	(18)	(17)	(17)	(15)	(14)	(15)
1983	74	71	69	67	65	62	60	59	57	56	56	55
	(15)	(16)	(17)	(18)	(19)	(21)	(22)	(24)	(26)	(27)	(28)	(28)
1984	54	52	49	45	43	42	42	40	38	37	35	34
	(29)	(28)	(28)	(28)	(29)	(31)	(31)	(31)	(30)	(29)	(28)	(27)
1985	32	31	31	30	29	28	27	26	25	24	23	23
	(27)	(26)	(26)	(26)	(25)	(24)	(23)	(22)	(22)	(23)	(23)	(24)
1986	22	21	20	19	17	16	14	14	13	13	12	12
	(24)	(24)	(24)	(23)	(22)	(21)	(20)	(19)	(18)	(16)	(15)	(14)
1987	12	13	14	14	15	16	18					
	(12)	(12)	(12)	(12)	(13)	(14)	(15)					

The table gives observed Zürich *smoothed* sunspot numbers for Cycle 21 up to the one calculated from the latest observed data, marked by a vertical bar. They are based on final Zürich numbers through 1979 and provisional Zürich numbers thereafter. Some of these data after the June 1976 value will change slightly when final data for 1980 are included. The numbers after the vertical bar are predictions by the McNish-Lincoln method (see *Explanation of Data Reports*, February 1980). Shown in parentheses are the corresponding absolute values of the 90% confidence interval, an indication of the uncertainty above and below the predicted number.

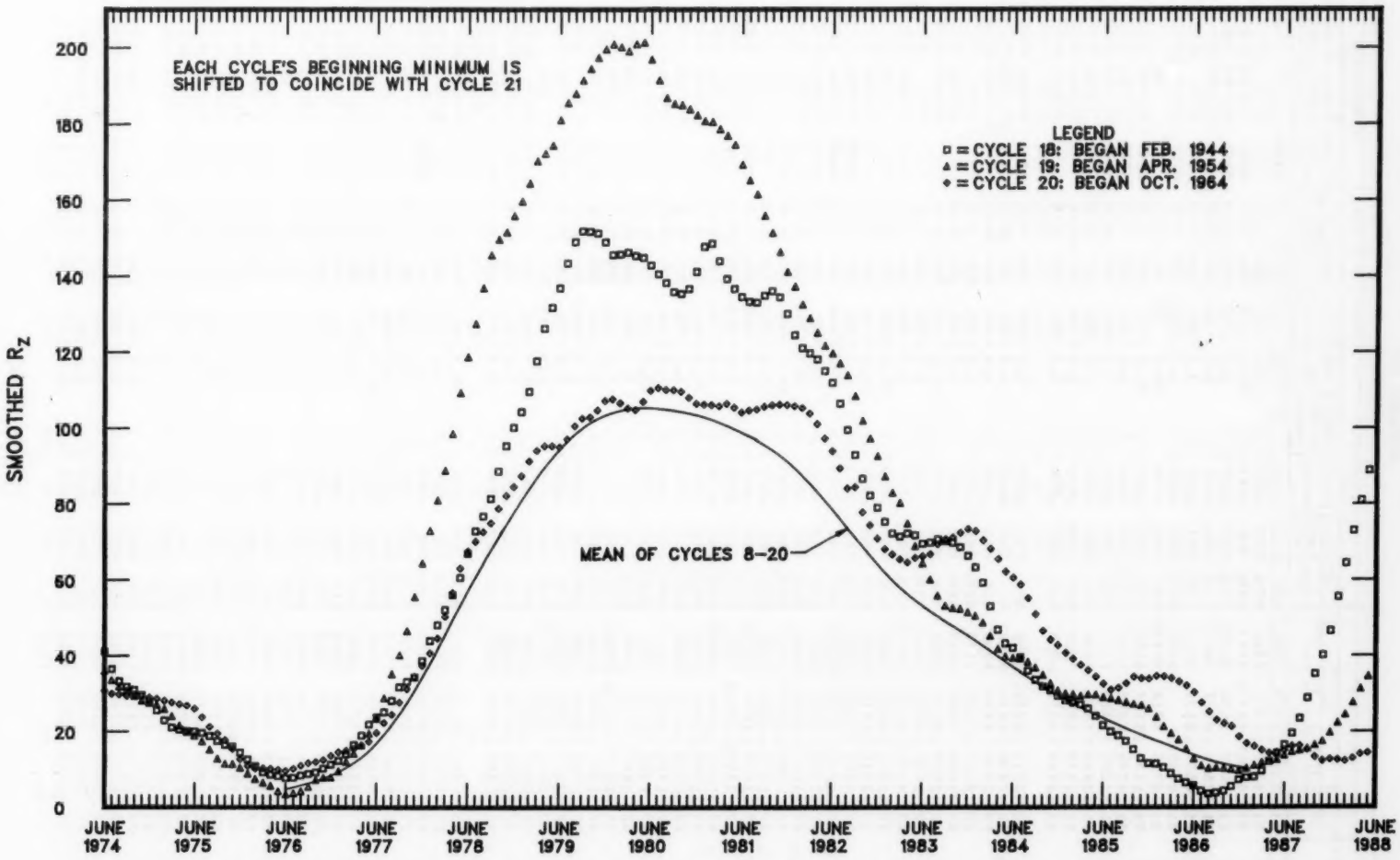
The McNish-Lincoln prediction method is recommended for predictions up to only one year ahead. From that point, the predictions regress rapidly toward the mean value. Furthermore, the method is very sensitive to the identification of a minimum epoch. In SGD issues 390-401, the Cycle 21 predictions were based on March 1976 as the minimum epoch. Later studies, including one published by Waldmeier, show that June 1976 is the more appropriate epoch of minimum. Thus, we adopted a June 1976 minimum.

*MAXIMUM OF SUNSPOT CYCLE 21. The most recent observed smoothed sunspot value suggests the maximum occurred in the interval December 1979 - January 1980. The uncertainties, however, in the predicted numbers indicate it is still too early to claim these 2 months as the period in which the true peak in the curve occurred.

OBSERVED AND ONE-YEAR-AHEAD PREDICTED SMOOTHED SUNSPOT NUMBERS



SUPERPOSITION OF CYCLES 18, 19, AND 20



15 Dec 80

Hα SOLAR FLARES

DECEMBER 1980

OBSERV-ATORY	OBSERVED UT				LOCATION					DURA-TION	IM-POR-TANCE	OBS.		MEASUREMENTS			REMARKS
	DAY	START	MAX. PHASE	END	APPROX. LAT.	APPROX. MER. DIST.	CENTRAL DISTANCE	HALE PLAGE REGION	CMP. DAY	MIN.		COND.	TYPE	TIME UT	MEAS. AREA Mill. of Disk	CORR. AREA Sq. Deg.	
CULG	01	0310	0328	0356	N22	E14	.424		2.2	46	SN		C	0328	80	.9	
PURP	01	0322	0331	0344	N24	E13	.443		2.1	22	SN		C				E
CULG	01	0436E	0437U	0453	N19	W38	.661		28.3	17D	SN		P	043?	90	1.2	
CULG	01	0452	0454	0456D	S11	E39	.638		4.1	4D	SN		P	0454	80	1.0	
LEAR	01	0626	0627	0630D	S11	E24	.449		3.1	4D	SB	3	C		79		
PURP	01	0627	0630	0641	S12	E27	.496		3.3	14	1B		C				
ISTA	01	0630E		0659	S12	E27	.496		3.3	29D	SB						H
LEAR	01	0715	0718	0720D	N13	W35	.598		28.7	5D	SB	3	C		96		D
WEND	01	1135	1137	1152	N12	W39	.646		28.6	17	SN		C	1137	56	.8	
WEND	01	1254	1259	1313	S12	E25	.469		3.4	19	SF		C	1259	31	.4	
RAMY	01	1255	1303	1318	S11	E24	.449		3.3	23	SF	3	C		28		
HOLL	01	1802	1806	1854	S13	E22	.436		3.4	52	SN	3	C		136		
HOLL	01	1839	1842	1912	N23	E09	.403		2.5	33	SN	3	C		147		
HOLL	01	1924	1931	1958	S11	E20	.394		3.3	34	SB	3	C		167		D
PEKG	02	0210	0234	0250	S14	E13	.335		3.1	40	1N		C	0234	378	4.1	UZ
LEAR	02	0330	0336	0340	S?	E25	.450		4.0	10	SF	3	C		21		
LEAR	02	0335	0338	0358	N25	E03	.413		2.4	23	SF	3	C		69		
PURP	02	0423	0426	0433	N25	E00	.410		2.2	10	1N		C				
LEAR	02	0424	0425	0439	N25	E02	.411		2.3	15	SN	3	C		66		
LEAR	02	0519	0520	0525	N16	W54	.823		28.2	6	SF	3	C		27		
PURP	02	0535	0627	0645	N13	E15	.330		3.4	70	1N		P				
LEAR	02	0536	0628	0631D	S13	E13	.323		3.2	55D	1B	4	C		456		
LEAR	02	0806	0816	0823	N16	W55	.832		28.2	17	SN	3	C		89		
LEAR	02	1014	1014	1022	N19	W51	.800		28.6	8	SF	3	C		25		
WEND	02	1046	1048	1059	S12	E11	.289		3.3	13	SN		C	1048	38	.4	E
WEND	02	1116	1133	1230D	S13	E11	.302		3.3	74D	1B		C	1133	244	2.6	F
ATHN	02	1120	1123	1212	S11	E12	.288		3.4	52	SB	3	C		159		D
RAMY	02	1153E	1342	1447	S14	E07	.281		3.0	174D	2B	3	C		581		D
RAMY	02	1202	1207	1215	N17	W55	.834		28.4	13	SF	3	C		24		
RAMY	02	1237	1248	1252	N16	W60	.875		28.0	15	SN	3	C		38		
WEND	02	1239	1251	1316D	S14	E09	.297		3.2	37D	1N		C	1251	281	3.0	F
ATHN	02	1240E	1244U	1334	S11	E12	.288		3.4	54D	SB	3	C		127		D
ATHN	02	1343	1346	1352D	S11	E10	.266		3.3	9D	1B	3	C		254		
HOLL	02	1658	1700	1741	N13	W32	.559		30.3	43	SF	3	C		48		
HOLL	02	1713	1721	1738	S10	E13	.290		3.7	25	SF	3	C		64		
HOLL	02	1739	1753	1807	S15	E10	.319		3.5	28	SF	3	C		34		
HOLL	02	1825	1826	1842	N12	W32	.554		30.4	17	SF	3	C		26		
HOLL	02	1825	2000	2036	S12	E03	.227		3.0	131	SN	3	C		139		
RAMY	02	1921E	1923U	1939D	S15	E06	.290		3.3	18D	SN	3	C		132		
HOLL	02	1933	1935	1943	N15	E07	.272		3.3	10	SF	3	C		84		
HOLL	02	2008	2015	2038	S09	E81	.988		8.9	30	SF	3	C				
HOLL	02	2037	2038	2100	S09	E12	.266		3.8	23	SF	3	C		28		
HOLL	02	2241	2256	2335D	S12	E06	.244		3.4	54D	SN	3	C		100		
HOLL	02	2242	2243	2307	S07	E74	.962		8.5	25	SN	3	C				
LEAR	02	2258	2258	2330	S11	E01	.205		3.0	32	SN	3	C		22		
LEAR	02	2353	0006	0041	S11	E00	.204		3.0	48	1B	3	C		335		D
LEAR	03	0019	0024	0040	N17	W63	.899		28.3	21	SN	3	C		105		
LEAR	03	0133	0138	0158	S11	W01	.203		3.0	25	SB	3	C		63		D
PEKG	03	0142	0145	0155	S14	E01	.253		3.1	13	1F		C	0145	315	3.4	F
LEAR	03	0446	0449	0454	S12	E19	.386		4.6	8	SF	3	C		26		
LEAR	03	0644	0658	0713	S10	E08	.230		3.9	29	SF	3	C		72		
LEAR	03	0728	0731	0735	N17	W67	.926		28.3	7	SF	3	C		13		
LEAR	03	0733	0755	0804	S13	W02	.238		3.2	31	SN	3	C		70		
LEAR	03	0912	0913	0928	S12	E16	.347		4.6	16	SF	3	C		59		
LEAR	03	0924	0935	0953	N21	W62	.897		28.7	29	SF	3	C		58		
HOLL	03	1454	1457	1507	N22	W14	.428		2.6	13	SF	3	C		43		
HOLL	03	1711	1726	1758	S10	E12	.276		4.6	47	SN	3	C		58		
HOLL	03	1910	1912	1937	S12	W09	.267		3.1	27	SN	3	C		107		
RAMY	03	1911	1915	1915D	S07	W14	.274		2.7	4D	1N	3	C		325		
PALE	03	1913	1913	1916	S10	W11	.263		3.0	3	SF	3	C		34		
HOLL	03	1913	1917	1932	N24	W16	.470		2.6	19	SF	3	C		44		
HOLL	03	1921	1922	1928	N10	W??	.192		3.4	7	SF	3	C		26		
HOLL	03	1936	1956	2024	S09	E00	.168		3.8	48	SF	3	C		63		
HOLL	03	2012	2023	2029	S07	W14	.274		2.8	17	SN	3	C		29		
HOLL	03	2133	2133	2138	S08	W15	.297		2.8	5	SF	3	C		22		
HOLL	03	2134	2137	2155	S30	E35	.711		6.5	21	SN	3	C		49		
HOLL	03	2138	2140	2201	N23	W18	.475		2.6	23	SN	3	C		62		
HOLL	03	2154	2155	2239	S12	W11	.288		3.1	45	SN	3	C		44		
LEAR	03	2242	2256	2309	N22	W18	.464		2.6	27	SF	3	C		132		
HOLL	03	2250	2255	2308	N17	W77	.976		28.2	18	SF	3	C				

Hα SOLAR FLARES

DECEMBER 1980

OBSERV-ATORY	OBSERVED UT				LOCATION					DURATION	IMPORTANCE	OBS.		MEASUREMENTS			REMARKS
	DAY	START	MAX. PHASE	END	APPROX. LAT.	APPROX. MER. DIST.	CENTRAL DISTANCE	HALE PLAGE REGION	CMP. DAY	MIN.		CONF.	TYPE	TIME UT	MEAS. AREA Mill. of Disk	CORR. AREA Sq. Deg.	
HOLL	03	2250	2252	2318	N22	W18	.464		2.6	28	SN	3	C		55		
LEAP	03	2256	2307	2350	S08	W16	.311		2.8	54	SN	3	C		129		
HOLL	03	2301	2306	2331U	S08	W16	.311		2.8	30U	SB	3	C		56		
PALE	03	2306	2307	2311	S08	W16	.311		2.8	5	SF	3	C		30		
PALE	03	2317	2320	2331	S14	W12	.323		3.1	14	SF	3	C		48		D
LEAR	03	2350	2350	0006	N22	W18	.464		2.6	16	SN	3	C		34		
CULG	04	0115	0116	0133U	S11	W15	.323		2.9	18U	SF		C	0116	70	.7	
LEAR	04	0117	0118	0134	S11	W14	.310		3.0	17	SN	3	C		41		
MANI	04	0122E	0126U	0136U	S13	W15	.344		2.9	14U	SF	1	V		25	.3	
CULG	04	0139	0147	0159	S12	W15	.333		2.9	20	SN		C	0147	170	1.8	F
CULG	04	0141	0145	0157	N13	W50	.778		30.3	16	SF		C	0145	40	.7	
CULG	04	0144	0149	0205	S10	W03	.190		3.8	21	SF		C	0149	40	.4	
LEAR	04	0155	0200	0211	N23	W33	.631		1.6	16	SF	3	C		34		
CULG	04	0157	0200	0210U	S08	W21	.384		2.5	13U	SF		C	0200	60	.7	
CULG	04	0234E	0234E	0249U	S11	W15	.323		3.0	15U	SN		P	0234	150	1.6	FB
CULG	04	0234	0234E	0245	N04	W14	.249		3.1	11	SN		P	0234	60	.6	
LEAR	04	0307	0314	0334	S11	W15	.323		3.0	27	SN	3	C		54		
LEAR	04	0310	0314	0335	N16	W79	.983		28.2	25	SN	3	C				
PEKG	04	0334	0335	0337	N13	W49	.767		30.5	3	SF		C	0336	42	.7	D
LEAR	04	0334	0335	0346	N13	W51	.788		30.3	12	SB	3	C		71		
LEAR	04	0337	0342	0345	S12	W13	.309		3.2	8	SN	3	C		27		
CULG	04	0359	0407	0425	S08	W20	.370		2.7	26	SN		C	0407	120	1.3	
CULG	04	0404	0407	0416	S09	W02	.169		4.0	12	SN		C	0407	80	.8	
LEAR	04	0407	0407	0413	S09	W02	.169		4.0	6	SN	3	C		22		
CULG	04	0427	0429	0438	S08	W20	.370		2.7	11	SF		C	0429	130	1.4	H
CULG	04	0434	0437	0443	S09	W02	.169		4.0	9	SF		C	0437	30	.3	
CULG	04	0450	0458	0520	S08	W20	.370		2.7	30	1N		C	0458	300	3.3	HJ
LEAR	04	0506	0510	0525	S11	W16	.336		3.0	19	SN	3	C		21		
CULG	04	0515	0519	0539	S12	W15	.333		3.1	24	SN		C	0519	100	1.1	T
CULG	04	0610	0614	0640	S12	W13	.309		3.3	30	SB		C	0614	160	1.7	JT
LEAR	04	0612	0613	0622	S13	W13	.320		3.3	10	SB	3	C		48		
PEKG	04	0613	0616	0621	S13	W13	.320		3.3	8	SN		C	0616	55	.6	D
CULG	04	0638	0641	0655	N23	W22	.515		2.6	17	SF		C	0641	50	.6	
CULG	04	0642	0650	0654	N28	E34	.677		6.8	12	SF		C	0650	30	.4	
HOLL	04	1646	1646	1730	S12	W22	.425		3.0	44	SN	3	C		27		
HOLL	04	1852	1903	1946	S12	W22	.425		3.1	54	SN	3	C		56		
RAMY	04	1902	1903	1910	S12	W22	.425		3.1	8	SN	3	C		30		
CULG	04	2300	2302	2305	N22	W32	.613		2.6	5	SF		C	2302	40	.5	
CULG	04	2306	2307	2312	N12	W21	.403		3.4	6	SF		C	2307	40	.4	
CULG	04	2309	2315	2329	S13	W26	.487		3.0	20	SF		C	2315	40	.5	T
CULG	04	2323	2327	2337	N27	E24	.575		6.8	14	SF		C	2327	60	.7	
CULG	05	0006	0010	0021	N12	W22	.418		3.4	15	SF		C	0010	20	.2	
CULG	05	0021	0029	0041	S11	W26	.473		3.1	20	SN		C	0029	60	.7	
CULG	05	0134	0146	0200U	S18	W19	.442		3.6	26U	SN		C	0146	140	1.6	F
LEAR	05	0154	0201	0215	S13	W30	.539		2.8	21	SN	3	C		68		
LEAR	05	0443	0445	0503	S11	E49	.766		8.9	20	1N	3	C		190		
LEAR	05	0614	0618	0653	S14	E50	.783		9.0	39	SN	3	C		71		
HOLL	05	1501	1529	1538	S12	W35	.600		3.0	37	SF	2	C		51		
HOLL	05	1617	1618	1629	S13	W34	.592		3.1	12	SF	2	C		22		
HOLL	05	1621	1627	1643	S11	W25	.459		3.8	22	SF	3	C		25		
HOLL	05	1718	1718	1721	S11	E38	.635		8.6	3	SF	3	C		28		
CULG	05	2059	2146U	2323U	S12	W38	.639		3.0	144U	1N		C	2146	160	2.1	FTJ
CULG	05	2144	2155	2221	S18	W29	.558		3.7	37	SF		C	2155	60	.7	
CULG	05	2145	2154	2209	S32	E08	.549		6.5	24	SN		C	2154	130	1.5	G
CULG	05	2217	2220	2228	N22	W43	.733		2.7	11	SF		C	2220	30	.4	
CULG	06	0005	0016	0047	S11	W42	.685		2.9	42	1F		C	0016	170	2.3	TLF
LEAR	06	0007	0010	0024	S11	W38	.635		3.2	17	SN	3	C		55		
LEAR	06	0306	0309	0318	S12	W40	.663		3.1	12	SN	3	C		26		
LEAR	06	0413	0415	0425	S07	E06	.164		6.6	12	SF	3	C		22		
CULG	06	0434	0441	0518	S11	W44	.709		2.9	44	1F		C	0441	160	2.2	
CULG	06	2150	2219U	2309	S13	W53	.811		2.9	79	2N		C	2219	380	6.5	F
CULG	06	2250	2256	2303	N26	W63	.912		2.2	13	SF		C	2256	80	1.8	
CULG	07	0010	0017	0030	[illegible]	W55	.825		2.9	20	1F		C	0017	120	2.2	
CULG	07	0040	0105	0125U	S11	E03	.200		7.3	45U	SF		C	0105	60	.6	H
CULG	07	0155	0206U	0238	S29	W10	.510		6.3	43	SF		C	0206	60	.7	
LEAR	07	0156E	0202U	0218	N15	E76	.972		12.8	22D	SN	3	C				
CULG	07	0256	0257	0302	S08	W56	.833		2.9	6	SF		C	0257	40	.7	
CULG	07	0317	0321	0349	N15	W21	.431		5.6	32	SN		C	0321	70	.8	

Hα SOLAR FLARES

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OBSERV-ATORY	OBSERVED UT				LOCATION					DURA-TION	IM POR-TANCE	OBS.		MEASUREMENTS			REMARKS
	DAY	START	MAX. PHASE	END	APPROX. LAT.	APPROX. MER. DIST.	CENTRAL DISTANCE	HALE PLAGE REGION	CMP. DAY	MIN.		COND.	TYPE	TIME UT	MEAS. AREA Mil. of Disk	CORR. AREA Sq. Deg.	
LEAR	07	0320	0325	0339	N14	W21	.422		5.6	19	SF	3	C		50		
CULG	07	0323	0349D	0500U	S14	E25	.477		9.0	97U	1N		P	0349	400	4.6	F
LEAR	07	0329	0334	0340	S13	E24	.457		8.9	11	SF	3	C		79		
LEAR	07	0340	0345	0356	N15	E75	.968		12.8	16	SF	3	C				
CULG	07	0444	0446	0454	N15	W21	.431		5.6	10	SF		C	0446	50	.5	
CULG	07	0452	0459	0530U	S10	W55	.825		3.1	38U	SN		C	0459	100	1.8	F
LEAR	07	0456	0506	0516	S11	W54	.817		3.2	20	SN	3	C		30		
LEAR	07	0532	0540	0627	N14	E75	.968		12.9	55	1B	3	C				D
CULG	07	0536	0551U	0611	N13	E70	.943		12.5	35	1B		C	0551	140		
CULG	07	2225	2227	2239	S08	W55	.823		3.8	14	SF		C	2227	40	.6	
CULG	07	2328	2334	2343	N12	E78	.979		13.8	15	SN		C	2334	60		
CULG	08	0028	0041	0142U	S08	W48	.749		4.4	74U	1F		C	0041	210	3.4	F
LEAR	08	0038	0041	0054	S10	W55	.825		3.9	16	SF	3	C		38		
CULG	08	0255	0258	0308	N15	E73	.959		13.6	13	SF		C	0258	40		
CULG	08	0531	0543	0558	S08	W56	.833		4.0	27	SF		C	0543	60	1.0	
CULG	08	0605U	0611	0653	S15	E38	.649		11.1	48U	SN		C	0611	90	1.3	
CULG	08	0710	0722	0739	N15	E60	.876		12.8	29	1N		C	0722	120	2.5	
LEAR	08	0747	0749	0804	S11	W64	.903		3.5	17	SN	3	C		15		
CULG	08	0750E	0750U	0756	S08	W62	.885		3.7	60	SF		P	0750	30	.6	
HOLL	08	1914E	2044U	2131	N50	W09	.771		8.2	137D	SN	2	C		116		
CULG	08	2031	2038	2113	N16	E53	.816		12.8	42	1B		C	2038	170	2.9	F
CULG	08	2035	2044	2112	N24	E46	.773		12.3	37	SF		C	2044	100	1.6	
CULG	08	2053	2102	2136U	S13	W00	.225		8.9	43U	SF		C	2102	80	.8	
CULG	08	2121	2127	2137	S07	E27	.467		10.9	16	SN		C	2127	100	1.1	
HOLL	08	2126	2128	2142	S06	E29	.478		11.0	16	SN	2	C		79		
CULG	08	2153	2156	2206	N20	E43	.726		12.1	13	SF		C	2156	30	.5	
CULG	08	2214	2217	2227	S09	W70	.941		3.7	13	SN		C	2217	50		
HOLL	08	2216	2218	2227	S11	W70	.942		3.7	11	SF	2	C		36		
CULG	08	2334	2341	2350	S18	E56	.847		13.2	16	SF		C	2341	60	1.1	H
CULG	08	2343	2349U	2359	S17	W50	.789		5.2	16	SF		C	2349	20	.3	GH
CULG	09	0106	0111	0136	N23	E43	.740		12.3	30	SN		C	0111	120	1.8	FG
LEAR	09	0218	0221	0235	S07	E24	.421		10.9	17	SF	3	C		67		
LEAR	09	0309	0329	0410	S07	E24	.421		10.9	61	SN	3	C		58		
LEAR	09	0432	0437	0445	S12	W86	.998		2.7	13	SN	3	C		39		
CULG	09	0433	0436	0447	S11	W75	.967		3.6	14	SN		C	0436	40		
CULG	09	0456	0508	0525	S18	E52	.810		13.1	29	SN		C	0508	80	1.4	T
LEAR	09	0505	0505	0519	S18	E52	.810		13.1	14	SF	3	C		15		
CULG	09	0514	0516	0528	S15	W29	.534		7.0	14	SF		C	0516	80	1.0	
CULG	09	0557	0733U	0839D	S18	W42	.707		6.1	162D	2N		C	0733	640	9.0	SU
LEAR	09	0600	0603	0610	S07	E22	.391		10.9	10	SF	3	C		24		
CULG	09	0617	0626	0728	S18	W01	.308		9.2	71	SF		C	0626	120	1.3	
CULG	09	0622	0630	0642	S18	E52	.810		13.2	20	SN		C	0630	80	1.4	T
LEAR	09	0625	0625	0632	S18	W02	.309		9.1	7	SF	3	C		38		
LEAR	09	0626	0634	0642	S18	E51	.801		13.1	16	SN	3	C		24		
CULG	09	0633	0641	0747	S13	E23	.441		11.0	74	SN		C	0641	140	1.5	KT
LEAR	09	0641	0645	0651	S12	E23	.434		11.0	10	SN	3	C		29		
LEAR	09	0641	0649	0651	S18	W03	.311		9.1	10	SF	3	C		46		
LEAR	09	0700	0700	0720	S14	E24	.462		11.1	20	SN	3	C		23		
WEND	09	0812E		0841D	S16	W42	.699		6.2	29D	2N		C	0815	840	12.1	BGIU
LEAR	09	0917	0918	0935	S14	W05	.255		9.0	18	SF	3	C		55		
LEAR	09	0950	0950	1010	S12	E21	.407		11.0	20	SF	3	C		26		
WEND	09	0952	1001	1009	S12	E21	.407		11.0	17	SF		C	1001	46	.5	
WEND	09	0952	0959	1005	N16	E44	.723		12.7	13	SF		C	0959	44	.7	
WEND	09	1009	1018	1032	S18	E49	.781		13.1	23	SN		C	1018	50	.8	L
LEAR	09	1011	1012	1017	S19	E48	.774		13.0	6	SF	3	C		16		
RAMY	09	1533	1537	1539	S17	E45	.736		13.0	6	SN	3	C		60		
HOLL	09	1544	1555	1646	N17	E44	.726		13.0	62	SN	3	C		156		
RAMY	09	1551	1556U	1632D	N17	E42	.704		12.8	41D	SN	3	C		88		
HOLL	09	1658	1702	1714	S15	E46	.741		13.2	16	SF	3	C		45		
HOLL	09	1708	1759	1837	N17	E42	.704		12.9	89	SN	3	C		82		
CULG	09	2023U	2034U	2112J	N15	E46	.742		13.3	49U	1F		C	2034	160	2.2	FK
HOLL	09	2042	2053	2110	N15	E36	.625		12.6	28	SF	3	C		29		
CULG	09	2127	2145	2208	N15	E41	.685		13.0	41	SN		C	2145	100	1.4	T
HOLL	09	2142	2146	2204	N17	E39	.670		12.8	22	SN	2	C		50		
CULG	09	2211	2217	2235	N10	E40	.657		12.9	24	SF		C	2217	100	1.3	
CULG	09	2224	2238	2306J	S11	E14	.303		11.0	42U	SF		C	2238	140	1.5	
HOLL	09	2230	2238	2254	S11	E15	.317		11.1	24	SF	2	C		85		
CULG	09	2231	2244	2332U	S14	W15	.347		8.8	61U	SF		C	2244	120	1.3	F
CULG	09	2341	2351	2405	S08	E21	.381		11.6	24	SF		C	2351	40	.4	

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OBSERVATORY	OBSERVED UT				LOCATION					DURATION	IMPORTANCE	OBS.		MEASUREMENTS			REMARKS
	DAY	START	MAX. PHASE	END	APPROX. LAT.	APPROX. MER. DIST.	CENTRAL DISTANCE	HALE PLAGE REGION	CMP. DAY	MIN.		CONF.	TYPE	TIME UT	MEAS. AREA Mill. of Disk	CORR. AREA Sq. Deg.	
CULG	10	0014	0017	0028	S18	E40	.684		13.0	14	SF		C	0017	80	1.1	
CULG	10	0022	0034	0050	S10	W37	.617		7.2	28	SF		C	0034	40	.5	
LEAR	10	0211	0214	0221	N08	E37	.613		12.9	10	SN	3	C		40		
CULG	10	0310	0312	0321	N16	E38	.654		13.0	11	1B		C	0312	160	2.1	T
MANI	10	0312	0313	0315	N16	E36	.630		12.8	3	SN	1	V		130	1.7	
LEAR	10	0312	0313	0321	N16	E37	.642		12.9	9	SB	3	C		145		D
CULG	10	0332	0339	0353	N15	E38	.650		13.0	21	SN		C	0339	60	.8	T
LEAR	10	0339	0342	0347	N14	E34	.595		12.7	8	SN	3	C		29		
LEAR	10	0536	0545	0630	N15	E33	.588		12.7	54	SN	3	C		64		
PURP	10	0538	0550	0638	N16	E35	.618		12.9	60	1B		C				
CULG	10	0545	0550	0622	N17	E35	.623		12.9	37	SN		C	0550	80	1.0	T
LEAR	10	0857	0859	0911	N14	E31	.557		12.7	14	SF	3	C		36		
WEND	10	1018	1033	1047	S18	E37	.649		13.2	29	SN		C	1033	50	.7	
WEND	10	1203	1207	1218	S16	E36	.627		13.2	15	SN		C	1207	31	.4	
WEND	10	1222	1224	1230	N14	E82	.991		16.7	8	SB		C	1224	16		A
WEND	10	1258		1313U	S06	E04	.122		10.8	15U	1N		C	1304	231	2.4	E
ATHN	10	1306	1309	1351	S05	E09	.177		11.2	45	1N	2	C		222		
HOLL	10	1723	1727	1812	S07	E10	.209		11.5	49	SN	3	C		62		
CULG	10	2154	2215	2242	S15	W24	.468		9.1	48	1N		C	2215	220	2.4	F
CULG	10	2157	2208U	2223	S20	E31	.591		13.2	26	SF		C	2208	60	.7	
CULG	10	2209	2215	2223	N15	E23	.460		12.6	14	SN		C	2215	100	1.2	
CULG	10	2254	2256	2307	S15	E30	.546		13.2	13	SN		C	2256	90	1.1	
LEAR	10	2257	2257	2302	S18	E30	.565		13.2	5	SF	3	C		42		
CULG	10	2311	2421	2443J	N15	E20	.422		12.5	92D	SN		P	2421	170	1.9	K
CULG	10	2312	2313	2317	S14	W03	.243		10.7	5	SN		C	2313	120	1.2	V
CULG	10	2320U	2343	2410U	S06	E03	.113		11.2	50U	SF		C	2343	40	.4	
CULG	10	2331	2334	2350	S15	E30	.546		13.2	19	SF		C	2334	80	1.0	
CULG	10	2342	2416U	2443J	S12	W02	.207		10.8	61D	SF		P	2416	140	1.4	
CULG	10	2346	2405	2417	N24	E11	.446		11.8	31	SN		C	2405	60	.7	K
CULG	11	0003	0019	0042	N13	E22	.432		12.7	39	SN		C	0019	80	.9	
LEAR	11	0006	0020	0023	N14	E22	.440		12.7	17	SN	3	C		27		
CULG	11	0134	0139	0153	N12	E23	.438		12.8	19	SF		C	0139	40	.4	
CULG	11	0434	0443	0515	N14	E20	.414		12.7	41	SN		C	0443	120	1.3	KT
CULG	11	0524	0545	0621	S04	W03	.082		11.0	57	SN		C	0545	80	.8	
CULG	11	0604	0615	0638	S16	E27	.513		13.3	34	SF		C	0615	20	.2	
CULG	11	0613	0617	0701	S08	W00	.133		11.3	48	SF		C	0617	120	1.2	
LEAR	11	0613	0616	0633	S07	W01	.117		11.2	20	SF	3	C		47		
CULG	11	0630	0632	0639	S19	E57	.856		15.5	9	SF		C	0632	30	.6	G
LEAR	11	0807	0809	0814	N14	E15	.353		12.5	7	SB	3	C		73		D
ATHN	11	0809E	0811	0922	N16	E10	.327		12.1	73D	SB	3	C		159		D
WEND	11	1212	1220	1239	N14	E16	.365		12.7	27	SN		C	1220	156	1.7	
WEND	11	1336	1340	1355	N14	E15	.353		12.7	19	SF		C	1340	181	2.0	
HOLL	11	1431E	1453	1459	N15	E14	.353		12.7	28D	SF	1	C		52		
HOLL	11	1521	1526	1532	S11	W04	.197		11.3	11	SF	2	C		112		
HOLL	11	1531	1532	1632	N14	E12	.320		12.5	61	SN	3	C		154		
HOLL	11	1553	1553	1604	S09	W05	.173		11.3	11	SF	3	C		36		
RAMY	11	1603	1603	1648	S11	W04	.197		11.4	45	SF	3	C		167		
HOLL	11	1720	1727	1738	N13	E11	.297		12.5	18	SN	2	C		165		
HOLL	11	1730	1739	1747	S07	W01	.127		11.5	17	SF	2	C		31		
PALE	11	1910	1912	1918J	N12	E10	.273		12.5	8D	SF	2	C		39		
HOLL	11	1910	1910	1923	N13	E09	.277		12.5	13	SN	3	C		74		
HOLL	11	1922	1923	1936	N05	E81	.988		17.9	14	SF	3	C				
HOLL	11	2022	2023	2028	N15	E09	.305		12.5	6	SN	3	C		43		
CULG	11	2048	2121	2132	N12	E09	.263		12.5	44	SN		C	2121	230	2.4	
CULG	11	2110	2112	2120	N16	E69	.939		17.1	10	SF		C	2112	60		
CULG	11	2117	2158U	2324U	S16	W43	.709		8.7	127U	1N		C	2158	360	4.9	
CULG	11	2159	2217	2235	S07	W06	.155		11.5	36	SF		C	2217	70	.7	
CULG	11	2211	2217	2229	N02	E80	.985		17.9	18	SN		C	2217	40		
HOLL	11	2211	2216	2242	N05	E79	.982		17.8	31	SN	3	C				
HOLL	11	2211	2213	2218	N17	E74	.965		17.5	7	SF	3	C				
CULG	11	2219	2332	2301	N13	E08	.268		12.5	42	1N		C	2332	220	2.3	
HOLL	11	2222	2225	2245	N15	E10	.314		12.7	23	SB	3	C		123		
PALE	11	2228E	2232	2240J	N12	E09	.254		12.5	12D	SF	2	C		34		
LEAR	11	2229E	2232U	2246	N13	E10	.286		12.7	17D	SN	3	C		175		
MANI	11	2232E	2232U	2238J	N15	E09	.305		12.6	6D	SF	1	V		80	.9	F
CULG	11	2250	2257	2307	N13	E74	.964		17.5	17	SF		C	2257	40		
LEAR	11	2304	2313	2324	N06	E79	.982		17.9	20	SF	3	C		74		
MANI	11	2308E	2309	2314J	N07	E86	.998		18.4	6D	SF	1	V				
CULG	11	2321	2323	2330	S07	W17	.251		11.0	9	SF		C	2323	80	.8	
LEAR	12	0007	0007	0019	N14	E08	.284		12.6	12	SF	3	C		30		

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OBSERV-ATORY	OBSERVED UT				LOCATION					DURA-TION	IM POR-TANCE	OBS.		MEASUREMENTS			REMARKS
	DAY	START	MAX. PHASE	END	APPROX. LAT.	APPROX. MER. DIST.	CENTRAL DISTANCE	HALE PLAGE REGION	CMP. DAY	MIN.		COND.	TYPE	TIME UT	MEAS. AREA Mil. of Disk	CORR. AREA Sq. Deg.	
CULG	12	0015	0018	0057	N05	E85	.996		18.4	42	1N		C	0018	100		
LEAR	12	0017	0017	0107	N05	E81	.988		18.1	50	1N	3	C				
LEAR	12	0020	0037	0044	N13	E08	.270		12.6	24	SN	3	C		58		
CULG	12	0020	0027	0044	N15	E74	.965		17.6	24	1N		C	0027	80		
LEAR	12	0021	0059	0104	N14	E74	.964		17.6	43	SN	3	C				
CULG	12	0047	0055	0121	N15	E74	.965		17.6	34	1N		C	0055	120		
PURP	12	0056	0059	0111	N14	E74	.964		17.6	15	1B		C				D
CULG	12	0123	0139	0202	N12	E07	.247		12.6	39	SN		C	0139	150	1.5	FT
CULG	12	0140	0146	0155	S20	E12	.387		13.0	15	SB		C	0146	80	.9	H
LEAR	12	0343	0345	0347	S06	W17	.306		10.9	4	SF	3	C		22		
LEAR	12	0348	0353	0409	N05	E79	.982		18.1	21	SF	3	C				
CULG	12	0459	0502	0512	N05	E80	.985		18.2	13	1B		C	0502	70		
PEKG	12	0500	0503	0509	N05	E79	.982		18.1	9	1B		C	0503	118		F
LEAR	12	0500	0502	0526	N06	E78	.979		18.1	26	1B	3	C				
CULG	12	0501	0507	0527	N13	E74	.964		17.8	26	SF		C	0507	30		
LEAR	12	0503	0504	0520	N14	E72	.955		17.6	17	SF	3	C				
CULG	12	0549	0557	0624	S30	W15	.541		11.1	35	SN		C	0557	60	.7	G
CULG	12	0559	0608U	0628	N12	E04	.227		12.5	29	SN		C	0608	100	1.0	FT
LEAR	12	0601	0602	0619	N13	E04	.243		12.6	18	SN	3	C		44		
PURP	12	0604	0607	0612	N13	E03	.239		12.5	8	SN		C				E
CULG	12	0623	0630	0652	S08	W18	.316		11.5	29	SN		C	0630	120	1.2	
CULG	12	0646	0650	0703	N18	E68	.935		17.4	17	SF		C	0650	20		
CULG	12	0712	0714	0723	N02	E79	.982		18.2	11	SF		C	0714	40		T
CULG	12	0714	0721	0731	S10	W19	.346		11.0	17	SF		C	0721	40	.4	
CULG	12	0725	0728	0735	S16	W42	.697		9.2	10	SN		C	0728	70	1.0	
CULG	12	0725	0730	0822	N12	E03	.222		12.5	57	SN		C	0730	80	.8	FKT
CULG	12	0744	0748	0802J	N02	E79	.982		18.2	18U	SF		C	0748	40		T
PURP	12	0751	0800	0804	S34	E40	.768		15.3	13	1B		C				D
CULG	12	0752	0756	0816	S35	E45	.812		15.7	24	SB		C	0756	100	1.7	
LEAR	12	0754	0758	0821	S35	E44	.804		15.6	27	SN	3	C		94		
ATHN	12	0755E	0800	0827	S29	E58	.884		16.7	32D	SB	2	C		80		D
LEAR	12	0833	0840	0845	N04	E72	.952		17.8	12	SF	3	C				
WEND	12	1128E		1150	S33	E45	.802		15.9	22D	SF		C	1128	56	1.0	
WEND	12	1155	1200	1213	N14	W01	.251		12.4	18	SF		C	1200	88	.9	
BOUL	12	1540E	1543	1555	N03	E70	.940		17.9	15D	SB	3	C		80		
RAMY	12	1541	1542	1600	N06	E69	.935		17.8	19	SB	3	C		69		D
RAMY	12	1546	1601	1658	N17	E65	.916		17.5	72	2N	3	C		373		
BOUL	12	1548E	1555	1610	N14	E59	.867		17.1	22D	1N	3	C		140		
BOUL	12	1616E	1620	1637	N17	E62	.895		17.3	21D	SF	3	C		30		
BOUL	12	1654E	1700	1750J	N13	E03	.239		12.9	56D	1B	3	C		320		
RAMY	12	1655	1703	1815	N14	E03	.255		12.9	80	SB	3	C		201		
RAMY	12	1716	1719	1724J	N05	E68	.928		17.8	8D	SB	3	C		90		
BOUL	12	1720	1722	1729	N03	E70	.940		18.0	9	SB	3	C		40		
CULG	12	2045	2049	2055	N03	E68	.928		18.0	10	SF		C	2049	40	1.0	JT
CULG	12	2058	2113	2215	N13	W05	.248		12.5	77	1B		C	2113	340	3.5	FK
CULG	12	2108	2121	2136	S13	E56	.837		17.1	28	SF		C	2121	160	2.9	
HOLL	12	2109	2110	2130	N12	W08	.256		12.3	21	SN	3	C		90		
CULG	12	2134	2137U	2137J	S16	E06	.286		13.3	3D	SN		P	2137	80	.8	
CULG	12	2206	2216	2236	N05	E68	.928		18.0	30	SN		C	2216	60		
LEAR	12	2221E	2221	2236	N03	E65	.907		17.8	15D	1N	2	C		224		
CULG	12	2229	2236	2245	S20	E02	.335		13.1	16	SF		C	2236	80	.8	
CULG	12	2251	2257	2309	N14	W05	.264		12.6	18	SN		C	2257	60	.6	T
LEAR	12	2303	2304	2320	N14	E02	.253		13.1	17	SN	3	C		41		
CULG	12	2312	2322	2349	N30	E69	.934		18.1	37	SN		C	2322	60		
CULG	12	2331	2335	2343	N12	W09	.265		12.3	12	SF		C	2335	40	.4	H
CULG	12	2355	2358	2425	N18	E65	.917		17.9	30	1N		C	2358	120	3.0	
CULG	12	2348	2357	2412	S13	E43	.700		16.2	24	SN		C	2357	120	1.7	
CULG	12	2358	2405	2545	S14	W59	.856		8.6	107	1N		C	2405	130	2.1	F
LEAR	13	0001	0002	0018	S16	W57	.850		8.7	17	SF	3	C		39		
CULG	13	0003	0014	0032	N15	W07	.294		12.5	29	SN		C	0014	130	1.4	FT
LEAR	13	0039	0040	0053	N14	E01	.253		13.1	14	SN	3	C		47		
CULG	13	0059	0103	0112	S15	E53	.812		17.0	13	SF		C	0103	60	1.1	
PEKG	13	0118	0120	0123	N12	W05	.235		12.7	5	SN		C	0118	63	.7	E
PURP	13	0125	0132	0145	N12	W06	.241		12.6	20	1B		C				
CULG	13	0126	0133	0207	N12	W07	.249		12.5	41	SN		C	0133	120	1.3	FT
LEAR	13	0129	0135	0151	N11	W05	.219		12.7	22	SN	3	C		81		
PEKG	13	0130	0131	0145	N11	W06	.226		12.6	15	SN		C	0130	155	1.6	E
CULG	13	0159	0205	0224	S08	W63	.892		8.4	25	SF		C	0205	70	1.6	
CULG	13	0212	0221	0232	N02	E62	.883		17.7	20	SF		C	0221	30	.4	
PEKG	13	0220	0222	0224	N04	E63	.892		17.8	4	SF		C	0222	50	1.1	D

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OBSERV-ATORY	OBSERVED UT				LOCATION					DURA-TION	IM POR-TANCE	OBS.		MEASUREMENTS			REMARKS
	DAY	START	MAX. PHASE	END	APPROX. LAT.	APPROX. MER. DIST.	CENTRAL DISTANCE	HALE PLAGE REGION	CMP. DAY	MIN.		CONG.	TYPE	TIME UT	MEAS. AREA Mil. of Disk	CORR. AREA Sq. Deg.	
PURP	13	0235	0239	0248	S17	E53	.816		17.1	13	SN		C				D
CULG	13	0235	0238	0247	S15	E52	.802		17.0	12	SN		C	0238	80	1.4	
LEAR	13	0237	0239	0245	S15	E53	.812		17.1	8	SF	3	C		30		
LEAR	13	0258	0306	0345	N03	E63	.892		17.8	47	SN	3	C		68		
CULG	13	0303	0313	0346	N02	E62	.883		17.8	43	1N		C	0313	90	2.1	F
PURP	13	0309	0316	0333	N02	E63	.891		17.9	24	1B		C				E
CULG	13	0319	0321	0335	S16	E40	.673		16.1	16	SN		C	0321	80	1.1	
PURP	13	0321	0322	0333	S16	E41	.685		16.2	12	SB		C				EG
PURP	13	0321	0322	0333	N02	E65	.907		18.0	12	SB		C				E
CULG	13	0349	0357	0413	N13	E61	.883		17.7	24	SN		C	0357	60	1.4	JT
LEAR	13	0353	0400	0410	N14	E61	.884		17.7	17	SF	3	C		68		
LEAR	13	0430	0449	0511	N11	W07	.234		12.7	41	SN	3	C		148		
LEAR	13	0433	0443	0519	N15	E55	.834		17.3	46	2N	3	C		438		
CULG	13	043RU	0442	0524	N13	E59	.866		17.6	46U	2B		C	0442	360	7.2	H
PURP	13	0440	0450	0550	N15	E60	.877		17.7	70	2B		C	0450	302	6.0	KH
CULG	13	0445	0450	0507	N12	W08	.257		12.6	22	1N		C	0450	190	2.0	T
PURP	13	0448	0452	0457	N12	W07	.249		12.7	9	1F		C				
PEKG	13	0501	0503	0540	N18	E63	.904		17.9	39	1N		C	0503	97	2.2	F
LEAR	13	0544	0544	0553	N05	E61	.876		17.8	9	SF	3	C		31		
CULG	13	0544	0558	0648	N13	W05	.250		12.9	64	SF		C	0558	160	1.7	FT
LEAR	13	0546	0550	0607	N13	W08	.272		12.6	21	SF	3	C		149		
PURP	13	0548	0551	0606	N12	W08	.257		12.6	18	1F		C				
PURP	13	0604	0609	0624	N13	E07	.264		13.8	20	SN		C				
LEAR	13	0650	0651	0659	N07	E63	.893		18.0	9	SF	3	C		29		
CULG	13	0653	0701	0709	S08	W28	.483		11.2	16	SF		C	0701	60	.7	F
CULG	13	0656	0701	0716	S15	E50	.782		17.0	20	SF		C	0701	40	.7	
CULG	13	0704	0712	0720	N02	E62	.883		17.9	16	SN		C	0712	80	1.9	
LEAR	13	0707	0708	0719	N07	E63	.893		18.0	12	SF	3	C		25		
LEAR	13	0709	0721	0731	N13	W08	.272		12.7	22	SN	3	C		164		
CULG	13	0710	0717	0721)	N11	W10	.264		12.5	110	1N		C	0717	250	2.6	T
PURP	13	0715	0717	0734	N13	W10	.290		12.6	19	1N		C				
PEKG	13	0717E	0717		N13	W11	.300		12.5		1N		P	0717	210	2.3	E
LEAR	13	0809	0809	0812	N14	E66	.920		18.3	3	SF	3	C		21		
LEAR	13	0822	0825	0837	N07	E62	.886		18.0	15	SF	3	C		47		
LEAR	13	0900	0900	0923	N13	W09	.281		12.7	23	SF	3	C		33		
LEAR	13	0919	0922	0929	N07	E61	.877		18.0	10	SN	3	C		62		
ATHN	13	0932E	0936U	0937)	N08	E65	.909		18.3	50	1B	3	C		127		
LEAR	13	0944	0948	1001	N07	E61	.877		18.0	17	SF	3	C		66		
LEAR	13	1002	1002	1010	S12	W33	.569		10.9	8	SF	3	C		24		
LEAR	13	1012	1018	1023	N09	E63	.895		18.2	11	SF	3	C		40		
LEAR	13	1018	1018	1024	N16	W06	.303		13.0	6	SF	3	C		21		
RAMY	13	1438	1438	1443	N12	W13	.310		12.6	5	SN	3	C		29		
LEAR	13	2313	2313	2328	S13	W41	.675		10.9	15	SF	3	C		39		
LEAR	13	2317	2317	2330	N11	E58	.855		18.3	13	SN	3	C		23		
LEAR	13	2339	2345	0001	N04	E52	.790		17.9	22	SN	3	C		105		
CULG	14	0117U	0120U	0136)	N09	E50	.774		17.8	19D	SN		P	0120	40	.6	
LEAR	14	0220	0229	0237	S08	E62	.884		18.7	17	SF	3	C		23		
LEAR	14	0221	0225	0238	N09	E50	.774		17.8	17	1N	3	C		156		
MANI	14	0223E	0224U	0228)	N07	E54	.813		18.1	5D	SN	1	V		80	1.4	
PEKG	14	0223	0226	0229	N09	E49	.763		17.8	6	SF		C	0226	29	.5	D
PEKG	14	0304	0313	0317	N16	E58	.863		18.5	13	SF		C	0314	25	.5	E
LEAR	14	0304	0306	0326	N16	E55	.837		18.3	22	SB	3	C		52		
LEAR	14	0310	0311	0322	N04	E48	.745		17.7	12	SN	3	C		40		
LEAR	14	0526	0529	0540	S08	E72	.951		19.6	14	SN	3	C		93		
LEAR	14	0548	0552	0555	N14	E54	.824		18.3	7	SF	3	C		24		
CULG	14	0638	0646	0701	N18	E38	.667		17.1	23	SF		C	0646	40	.5	
CULG	14	0746	0752	0814	N13	E58	.858		18.7	28	SF		C	0752	30	.6	
CULG	14	0812	0814	0818	N06	E49	.748		17.9	6	SF		C	0814	20	.3	
LEAR	14	0837	0837	0842	S16	E36	.624		17.1	5	SF	3	C		22		
LEAR	14	0904E	0908U	0918	N18	E35	.632		17.0	14D	SN	3	C		74		
LEAR	14	0940	0941	0951	S13	W46	.733		11.0	11	SF	3	C		19		
LEAR	14	0944	0949U	1016	N06	E46	.724		17.9	32	SB	3	C		109		D
ATHN	14	0945E	0950U	1000)	N50	E01	.774		14.5	15D	SB	3	C		111		D
ATHN	14	1055E	1058U	1130	N52	E01	.796		14.5	35D	SB	3	C		64		D
RAMY	14	1311	1315	1326	N05	E42	.674		17.7	15	SN	3	C		48		
RAMY	14	1404	1410	1421	N15	E51	.797		18.4	17	1N	3	C		211		
RAMY	14	1440	1446	1534	N05	E41	.661		17.7	54	SN	3	C		27		
RAMY	14	1505	1508	1520	N20	E49	.791		18.3	15	1N	3	C		263		
HOLL	14	1602	1616	1617)	N15	E50	.787		18.4	15D	SN	3	C		70		
RAMY	14	1611	1617	1638	N15	E48	.766		18.3	27	SN	3	C		89		
HOLL	14	1616	1617	1617)	S11	W54	.815		10.6	10	SF	3	C		50		

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OBSERV-ATORY	OBSERVED UT				LOCATION					DURA-TION	IM-POR-TANCE	OBS.		MEASUREMENTS			REMARKS
	DAY	START	MAX. PHASE	END	APPROX. LAT.	APPROX. MER. DIST.	CENTRAL DISTANCE	HALE PLAGE REGION	CMP. DAY	MIN.		COND.	TYPE	TIME UT	MEAS. AREA Mill. of Disk	CORR. AREA Sq. Deg.	
RAMY	14	1616	1619	1636	S08	W51	.781		10.9	20	SF	3	C		38		
HOLL	14	1722	1723	1749	N08	E66	.916		19.7	27	SF	3	C		43		
RAMY	14	1735	1752	1828	N05	E41	.661		17.8	53	1B	3	C		202		D
HOLL	14	1736	1750	1850	N05	E41	.661		17.8	74	1B	3	C		211		
RAMY	14	1859	1859	1906	N16	W29	.547		12.6	7	SN	3	C		39		
HOLL	14	1859	1859	1908	N16	W29	.547		12.6	9	SN	3	C		39		
HOLL	14	1932	1934	1944	N06	E37	.609		17.6	12	SB	3	C		68		
RAMY	14	1933	1935	1951	N06	E37	.609		17.6	18	SN	3	C		41		
CULG	14	2056	2100	2103	N05	E36	.594		17.6	7	SN		C	2100	80	1.0	JT
HOLL	14	2109	2110	2123	N05	E40	.648		17.9	14	SF	3	C		34		
CULG	14	2158	2224	2355	N04	E39	.633		17.8	117	1N		C	2224	210	2.7	FKJ
CULG	14	2159	2207	2223	N15	E48	.766		18.5	24	SF		C	2207	60	.9	F
HOLL	14	2203	2208	2209	N06	E36	.596		17.6	6	SB	3	C		159		D
HOLL	14	2203	2238	2311	N10	E37	.621		17.7	68	SB	3	C		159		D
CULG	14	2235	2250	2323	N10	E38	.634		17.8	48	1B		C	2250	160	2.1	H
LEAR	14	2339	2345	0001	N04	E52	.790		18.9	22	SN	3	C		105		
CULG	14	2349E	2349U	2359	N18	W31	.585		12.7	10D	SF		P	2349	60	.7	
CULG	15	0005U	0010	0030	N19	E28	.558		17.1	25U	SB		C	0010	130	1.6	
LEAR	15	0005	0008	0024	N18	E27	.539		17.0	19	SN	3	C		161		
CULG	15	0011	0022	0036	N18	W31	.586		12.7	25	SF		C	0022	138	1.6	F
CULG	15	0050	0055	0147	N04	E37	.606		17.8	57	SF		C	0055	50	.6	FT
LEAR	15	0052	0052	0152	N05	E38	.621		17.9	60	SF	3	C		60		
CULG	15	0100	0107	0110	N18	W31	.586		12.7	10	SF		C	0107	20	.2	
CULG	15	0111	0114	0119	N08	W22	.401		13.4	8	SN		C	0114	40	.4	
CULG	15	0122	0126	0131	S15	W30	.542		12.8	9	SF		C	0126	40	.5	
CULG	15	0130	0134	0139	N09	E38	.631		17.9	9	SN		C	0134	30	.4	
CULG	15	0159	0206	0235	N05	E43	.686		18.3	36	SF		C	0206	70	1.0	FKT
CULG	15	0213	0216	0224	S17	E28	.529		17.2	11	SF		C	0216	80	1.0	
CULG	15	0227	0228	0233	N13	E44	.717		18.4	6	SF		C	0228	30	.5	T
LEAR	15	0228	0228	0241	N14	E44	.720		18.4	13	SF	3	C		51		
CULG	15	0250	0251	0303	N09	E36	.605		17.8	13	SF		C	0251	50	.6	T
LEAR	15	0313	0314	0321	N05	E37	.608		17.9	8	SF	3	C		57		
CULG	15	0313	0315	0323	N11	E40	.663		18.1	10	SN		C	0315	100	1.3	T
LEAR	15	0313	0314	0323	N14	E43	.708		18.4	10	SF	3	C		77		
CULG	15	0316	0326	0345	N18	E30	.574		17.4	29	1N		C	0326	170	2.0	F
CULG	15	0326	0407	0412	N18	W31	.586		12.8	46	SN		C	0407	120	1.5	KF
CULG	15	0339	0348	0500	S06	W57	.840		10.9	81	1B		C	0348	180	3.6	
LEAR	15	0344	0350	0413	S06	W58	.849		10.8	29	SF	3	C		56		
CULG	15	0349	0350	0356	N04	E35	.578		17.8	7	SN		C	0350	40	.8	T
CULG	15	0431U	0447	0537	N20	W23	.511		13.5	66U	SN		C	0447	120	1.4	L
LEAR	15	0546	0554	0604	N04	E33	.550		17.7	18	SF	3	C		103		
LEAR	15	0550	0602	0604	S10	E46	.727		18.7	14	SF	3	C		27		
CULG	15	0625	0636	0701	N04	E33	.550		17.7	36	SF		C	0636	100	1.2	T
LEAR	15	0628	0628	0640	N03	E32	.533		17.7	12	SF	3	C		42		
LEAR	15	0712	0721	0728	N05	E35	.580		17.9	16	SF	3	C		43		
CULG	15	0719	0722	0725	N02	E35	.575		17.9	6	SN		C	0722	40	.5	T
CULG	15	0738	0741	0747D	N05	E34	.566		17.9	9D	SN		C	0741	160	1.9	T
LEAR	15	0740	0741	0814J	N04	E34	.564		17.9	34D	SF	3	C		105		
LEAR	15	0848E	0851U	0916J	N05	E34	.566		17.9	28D	SN	3	C		126		
HOLL	15	1519	1520	1546	N09	E35	.591		18.3	27	SN	3	C		42		
HOLL	15	1652	1702	1723	N14	E37	.637		18.5	31	SN	3	C		90		
HOLL	15	1715	1717	1730	S16	E20	.420		17.2	15	SN	3	C		60		
HOLL	15	1828	1840	2026	N15	E35	.617		18.4	118	1N	2	C		487		
HOLL	15	1913	1927	2016	S16	E19	.408		17.2	63	1B	2	C		229		
HOLL	15	1915	1936	2124	N15	W36	.629		13.1	129	SN	2	C		81		
HOLL	15	1920	1927	1952	N11	E28	.504		17.9	32	1B	2	C		321		
CULG	15	2005E	2005E	2114	N12	E35	.603		18.5	69D	SN		P	2005	90	1.1	B
CULG	15	2012	2031	2115	N15	W34	.604		13.3	63	SN		C	2031	40	.5	
CULG	15	2049	2055	2103	N15	E25	.491		17.7	14	SF		C	2055	30	.3	
HOLL	15	2102	2106	2110	N04	E27	.460		17.9	8	SF	2	C		29		
CULG	15	2205	2205	2208	N07	E23	.411		17.6	3	SF		C	2205	20	.2	T
CULG	15	2207	2212	2215	N09	E23	.422		17.6	8	SF		C	2212	50	.6	TK
CULG	15	2210	2231U	2300U	N06	E22	.391		17.6	50U	SF		C	2231	60	.7	T
CULG	15	2244	2305	2320	N10	E23	.428		17.7	36	SF		C	2305	50	.6	TK
CULG	15	2255	2256	2310	S12	W38	.633		13.1	15	SN		C	2256	90	1.2	
CULG	15	2321	2340	2358	S08	E38	.623		18.8	37	SN		C	2340	120	1.6	H
CULG	15	2329	2338	2354U	S16	E15	.361		17.1	25U	SN		C	2338	130	1.3	T
CULG	15	2345	2347	2357	S04	W65	.906		11.1	12	SF		C	2347	60	1.4	
LEAR	16	0059E	0102	0128	N05	E25	.433		17.9	29D	SB	3	C		183		

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OBSERV-ATORY	OBSERVED UT				LOCATION					DURA-TION	IM-POR-TANCE	OBS.		MEASUREMENTS			REMARKS
	DAY	START	MAX. PHASE	END	APPROX. LAT.	APPROX. MER. DIST.	CENTRAL DISTANCE	HALE PLAGE REGION	CMP. DAY	MIN.		COND.	TYPE	TIME UT	MEAS. AREA Mill. of Disk	CORR. AREA Sq. Deg.	
CULG	16	0059	0104	0120	N05	E25	.433		17.9	21	SN		C	0104	100	1.1	
PEKG	16	0104	0106	0120	N05	E24	.418		17.8	16	SF		P	0106	59	.6	E
CULG	16	0143	0148	0158	N09	E23	.423		17.8	15	1B		C	0148	200	2.2	
LEAR	16	0146	0148	0155	N05	E24	.416		17.9	9	SB	3	C		173		
CULG	16	0148	0157	0201D	S04	W62	.883		11.4	130	SF		P	0157	40	1.0	
PURP	16	0158E	0158	0159D	N09	E21	.394		17.7	10	SN		C				D
CULG	16	0252	0304	0325	N19	W41	.706		13.0	33	SF		C	0304	80	1.2	
CULG	16	0256	0319	0350	S08	W71	.946		10.8	54	SN		C	0319	30		
LEAR	16	0315	0317	0320	S09	W76	.970		10.4	5	SF	3	C				
CULG	16	0317	0322	0338	S35	W04	.562		15.8	21	SN		C	0322	70	.8	
LEAR	16	0322	0323	0329	S35	W04	.562		15.8	7	SF	3	C		42		
LEAR	16	0334	0346	0358	N14	E30	.549		18.4	24	SF	3	C		45		
CULG	16	0429	0436	0445	N09	E21	.394		17.8	16	SN		C	0436	120	1.3	
LEAR	16	0434	0438	0440	N08	E21	.387		17.8	6	SF	3	C		43		
LEAR	16	0443	0447	0451	S18	E14	.372		17.2	8	SF	3	C		35		
LEAR	16	0540	0541	0558	N03	E22	.380		17.9	18	SF	3	C		55		
LEAR	16	0555	0558	0610	N14	E32	.575		18.6	15	SF	3	C		46		
CULG	16	0628	0635	0646D	S18	E12	.353		17.2	180	SN		C	0635	60	.7	T
LEAR	16	0632	0652	0722	S18	E14	.372		17.3	50	SN	3	C		106		
LEAR	16	0648	0654	0708	N07	E27	.471		18.3	20	SF	3	C		61		
ISTA	16	0650		0716	S17	E15	.371		17.4	26	1N						E
PURP	16	0650	0659	0721	S17	E09	.314		17.0	31	SN		C				E
PURP	16	0749E	0749	0759	N11	E35	.599		19.0	100	SN		C				D
LEAR	16	0805	0809	0813D	N09	E18	.351		17.7	80	1B	3	C		203		
LEAR	16	0818	0824	0830	N14	W40	.674		13.3	12	SF	3	C		41		
LEAR	16	0907	0907	0934	N06	E23	.407		18.1	27	SN	3	C		81		
ATHN	16	0909	0912	0921	N06	E23	.407		18.1	12	SB	3	C		65		D
LEAR	16	0920	0921	0929	N13	E25	.477		18.3	9	SF	3	C		47		
LEAR	16	0942	1012	1023	N06	E24	.422		18.2	41	2B	3	C		708		D
ATHN	16	0954	0959	1054	N04	E18	.320		17.8	60	SB	3	C		159		
LEAR	16	1013	1019	1023	S09	W78	.978		10.6	10	SF	3	C				
LEAR	16	1018	1021	1022	S18	E10	.336		17.2	4	SF	3	C		26		
RAMY	16	1149E	1154	1236	N12	E20	.403		18.0	470	2B	3	C		714		D
RAMY	16	1149	1149	1153D	N13	E25	.477		18.4	40	2B	3	C		761		
ATHN	16	1151	1154	1232	N08	E20	.373		18.0	41	1B	3	C		254		
HOLL	16	1427	1454	1516	N09	E14	.295		17.7	49	1B	2	C		492		D
HOLL	16	1427	1453	1454D	N04	E22	.383		18.3	270	1N	2	C		303		
RAMY	16	1432	1437	1449D	S17	E08	.306		17.2	170	SB	3	C		141		
HOLL	16	1436	1437	1438D	S16	E07	.284		17.1	20	SB	2	C		131		
RAMY	16	1442	1455	1506	N09	E13	.282		17.6	24	1B	3	C		435		
PALE	16	1835	1839U	1845	N07	E12	.249		17.7	10	SF	3	C		33		
HOLL	16	1835	1836	1847	N08	E11	.245		17.6	12	SN	3	C		38		
HOLL	16	1852	1857	1913	N17	E25	.508		18.7	21	SB	3	C		61		D
HOLL	16	1919	1922	1949	N13	W48	.762		13.2	30	SB	3	C		106		
PALE	16	1922	1922	1930	N14	W52	.805		12.9	8	SF	3	C		44		
HOLL	16	1945	1947	2014	N18	E25	.516		18.7	29	SN	3	C		29		
HOLL	16	1956	2001	2013	N14	W49	.775		13.2	17	SF	3	C		24		
HOLL	16	2026	2029	2036	N08	E10	.232		17.6	10	SN	3	C		86		
PALE	16	2027	2029	2035	N07	E11	.235		17.7	8	SF	3	C		43		
CULG	16	2201	2212	2258	N11	E32	.559		19.3	57	SN		C	2212	70	.8	
CULG	16	2214	2218	2226	N06	W06	.160		16.5	12	SF		C	2218	60		
CULG	16	2237	2249	2311	S36	W12	.598		16.0	34	SF		C	2249	30	.4	
LEAR	16	2243	0102	0128	N05	E25	.433		18.8	165	SB	3	C		183		
CULG	16	2322	2335	2356	N05	E16	.294		18.2	34	SF		C	2335	70	.7	
LEAR	17	0035	0037	0046	N15	E21	.443		18.6	11	SN	3	C		23		
CULG	17	0036	0039	0111	N18	E21	.472		18.6	35	SN		C	0039	150	1.7	F
LEAR	17	0050	0050	0104D	N15	E22	.455		18.7	140	SF	3	C		21		
CULG	17	0106	0121	0155	S16	E03	.261		17.3	49	SF		C	0121	50	.5	
CULG	17	0138	0146	0201U	S14	E01	.223		17.1	23U	SF		C	0146	120	1.2	
CULG	17	0232	0245	0259	S18	E58	.860		21.5	27	SF		C	0245	50	1.0	
CULG	17	0234	0329	0434	N06	E16	.301		18.3	120	SF		C	0329	80	.8	
CULG	17	0341	0355	0444	S18	E50	.787		20.9	63	SN		C	0355	90	1.4	
CULG	17	0342	0349	0406	N14	W62	.893		12.5	24	SN		C	0349	30	.7	
LEAR	17	0347	0347	0407	N14	E19	.409		18.6	20	SF	3	C		31		
CULG	17	0421	0425	0449	N07	E07	.186		17.7	28	SB		C	0425	140	1.4	H
LEAR	17	0424E	0424U	0437	N05	E09	.189		17.9	130	SB	3	C		43		D
MANI	17	0426	0427	0432D	N06	E05	.151		17.6	60	SN	1	V		40	.4	
PURP	17	0428E	0429	0442	N07	E05	.166		17.6	140	1B		C				
CULG	17	0448	0449	0457	N12	W58	.858		12.9	9	SF		C	0449	20	.4	
CULG	17	0504	0511	0528	N22	E17	.477		18.5	24	SN		C	0511	170	1.9	F
CULG	17	0537	0542	0552	N11	W59	.865		12.8	15	SF		C	0542	30	.7	

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OBSERV-ATORY	OBSERVED UT				LOCATION					DURA-TION	IM POR-TANCE	OBS.		MEASUREMENTS			REMARKS
	DAY	START	MAX. PHASE	END	APPROX. LAT.	APPROX. MER. DIST.	CENTRAL DISTANCE	HALE PLAGE REGION	CMP. DAY	MIN.		COND.	TYPE	TIME U T	MEAS. AREA Mil. of Disk	CORR. AREA Sq. Deg.	
CULG	17	0543	0556	0612	N15	E17	.396		18.5	29	SF		C	0556	140	1.5	FK
CULG	17	0547	0558	0605	N07	E06	.175		17.7	18	SF		C	0558	50	.5	
CULG	17	0556	0559	0612	N12	E27	.498		19.3	16	SF		C	0559	40	.5	
LEAR	17	0639	0640	0648	N02	E07	.133		17.8	9	SF	3	C		28		
CULG	17	0640	0643	0654	S18	E02	.292		17.4	14	SN		C	0643	70	.7	
CULG	17	0658	0707	0716	S17	W52	.804		13.4	18	SF		C	0707	30	.6	
CULG	17	0758	0801	0805	S17	W57	.850		13.1	7	SF		C	0801	30	.6	
CULG	17	0801	0805	0811D	N13	E15	.351		18.5	10D	SN		P	0805	120	1.3	
LEAR	17	0804	0805	0821	N14	E17	.385		18.6	17	SN	3	C		133		
ATHN	17	0844	0847	0855D	N10	E07	.227		17.9	11D	SB	2	C		111		D
LEAR	17	0845	0846	0858	N06	E03	.135		17.6	13	SB	3	C		138		D
WEND	17	0847E	0847	0857	N08	E03	.167		17.6	10D	SB		C	0847	78	.8	H
WEND	17	0945	0951	1008	N10	E13	.294		18.4	23	SF		C	0951	47	.5	
LEAR	17	0946	0949	0958	N07	E10	.223		18.2	12	SF	3	C		34		
WEND	17	1136E		1151D	N08	E02	.163		17.6	15D	SN		C	1136	44	.5	H
RAMY	17	1206	1209	1310	N10	E07	.227		18.0	64	2B	3	C		646		D
WEND	17	1207	1211	1243	N11	E08	.251		18.1	36	1N		P	1211	338	3.6	
RAMY	17	1257	1259	1305	N07	E05	.166		17.9	8	SN	3	C		33		
WEND	17	1345	1347	1354	N08	W01	.160		17.5	9	SF		C	1347	50	.5	H
WEND	17	1437	1440	1446D	N16	E13	.365		18.6	9D	SF		C	1440	72	.8	
HOLL	17	1634	1636	1710	N15	W59	.870		13.3	36	SN	3	C		69		
PALE	17	1822	1830	1852	S18	E50	.787		21.5	30	SN	3	C		123		D
HOLL	17	1858	1859	1929	S19	E46	.748		21.2	31	SF	3	C		72		
CULG	17	2047	2049	2055	S18	W08	.319		17.3	8	SF		C	2049	30	.3	
CULG	17	2105	2110	2133	N08	E04	.173		18.2	28	SF		C	2110	160	1.6	F
CULG	17	2109	2114	2134	N07	E25	.442		19.8	25	SF		C	2114	40	.4	
CULG	17	2137	2143	2148	N15	W64	.908		13.1	11	1N		C	2143	130	3.2	
CULG	17	2246	2251	2257	N08	W03	.167		17.7	11	SN		C	2251	60	.6	H
CULG	17	2253	2303	2315D	N16	W62	.895		13.3	22D	1N		C	2303	180	4.2	F
HOLL	17	2255	2257	2340D	N14	W62	.893		13.3	45D	SB	3	C		65		D
PURP	18	0141	0146	0156	N06	E02	.131		18.2	15	1N		C				
PEKG	18	0141	0151	0231	N07	E00	.144		18.1	50	1B		C	0149	421	4.4	F
PALE	18	0141	0143	0211	N07	E03	.153		18.3	30	1B	2	C		263		D
MANI	18	0143E	0143	0230D	N07	W02	.148		17.9	47D	1B	1	V		215	2.2	F
LEAR	18	0144E	0144U	0245D	N05	W03	.121		17.8	61D	1B	2	C		378		D
PEKG	18	0230	0232	0256	S06	E09	.176		18.8	26	1N		C	0232	294	3.1	F
PALE	18	0230	0230	0236	S06	E10	.192		18.9	6	SF	2	C		26		
LEAR	18	0704	0711	0713	S18	E47	.755		21.8	9	SF	3	C		22		
CULG	18	0807	0823	0825D	N12	E02	.232		18.5	18D	SF		C	0823	50	.5	
LEAR	18	0810	0818	0826	S18	E46	.745		21.8	16	SF	3	C		28		
LEAR	18	0814	0824	0839	N14	E01	.264		18.4	25	SF	3	C		88		
WEND	18	0915	0920	0944D	S17	W17	.390		17.1	29D	SF		C	0920	88	1.0	E
LEAR	18	0915	0916	0923	N04	W07	.152		17.9	8	SF	3	C		28		
PALE	18	1908	1923	1939	N07	W11	.237		18.0	31	SN	2	C		44		
HOLL	18	1913	1922	1928	N08	W14	.288		17.8	15	SB	3	C		84		D
CULG	18	2009	2012	2026	N15	E01	.281		18.9	17	SF		C	2012	50	.5	
CULG	18	2033	2044	2052	N03	E51	.779		22.7	19	SF		C	2044	40	.6	
CULG	18	2205	2220	2316	S22	W37	.663		16.1	71	1N		C	2220	280	4.2	U
CULG	18	2212	2221	2244	S09	W01	.136		18.9	32	SF		C	2221	40	.4	
CULG	18	2225	2234	2250	N14	W01	.264		18.9	25	SN		C	2234	80	.8	
CULG	18	2339	2346	2414	N05	W15	.280		17.9	35	1F		C	2346	200	2.1	F
PEKG	19	0015	0018	0025	N14	W09	.305		18.3	10	SN		C	0017	118	1.3	E
CULG	19	0101	0109	0226	N13	W11	.310		18.2	85	SN		C	0109	180	1.9	FKT
LEAR	19	0105	0107	0117	N12	W11	.297		18.2	12	SF	3	C		69		
PEKG	19	0110	0114	0129	N12	W11	.297		18.2	19	SF		P	0114	105	1.1	E
CULG	19	0210	0212	0218	N07	W19	.354		17.7	8	SN		C	0212	20	.2	
CULG	19	0230	0238	0255	S03	E60	.866		23.6	25	1B		C	0238	120	2.5	
LEAR	19	0232	0237	0250	S06	E61	.875		23.7	18	1B	3	C		165		
PURP	19	0233	0237	0239D	S05	E59	.857		23.5	6D	1B		P				
PEKG	19	0234	0240	0245	S04	E61	.874		23.7	11	1B		P	0240	143	2.9	E
PALE	19	0235	0238	0243	S04	E60	.866		23.6	8	SF	2	C		70		
CULG	19	0243	0247	0255	S13	E28	.501		21.2	12	SF		C	0247	30	.3	
PEKG	19	0245	0254	0321	N13	W13	.331		18.1	36	SF		C	0254	109	1.2	E
CULG	19	0248	0250	0300	N03	E45	.710		22.5	12	SF		C	0250	40	.6	
CULG	19	0423	0442	0507	N16	W04	.306		18.9	44	SN		C	0442	160	1.7	
LEAR	19	0439E	0445U	0448D	N15	W06	.300		18.7	9D	SF	2	C		73		
PEKG	19	0442	0446	0451	N15	W07	.306		18.7	9	SF		C	0446	42	1.4	E
HOLL	19	1954	1955	2003	N06	W26	.454		17.9	9	SF	2	C		29		
CULG	19	2018	2024	2058	N08	W23	.419		18.1	48	1B		C	2024	180	2.0	FK
HOLL	19	2012	2014	2057	N05	W25	.435		18.0	45	1N	2	C		252		

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OBSERV-ATORY	OBSERVED UT				LOCATION				CMP. DAY	DURA-TION — MIN.	IM-POR-TANCE	OBS.		MEASUREMENTS			REMARKS
	DAY	START	MAX. PHASE	END	APPROX. LAT.	APPROX. MER. DIST.	CENTRAL DISTANCE	HALE PLAGE REGION				COND.	TYPE	TIME — UT	MEAS. AREA MIL. of Disk	CORR. AREA Sq. Deg.	
PALE	19	2018E	2018U	2027	N04	W26	.447		17.9	9D	SF	2	C		34		
CULG	19	2034	2035	2120	N03	E40	.646		22.9	46	1N		C	2035	160	2.1	
HOLL	19	2035	2041	2059	N02	E39	.631		22.8	24	SF	2	C		79		
CULG	19	2041	2047	2129	S15	E41	.678		22.9	48	SF		C	2047	98	1.3	
CULG	19	2102	2110	2126	N16	W15	.388		18.8	24	SN		C	2110	110	1.2	
CULG	19	2159	2210	2233	N07	W25	.443		18.0	34	SF		C	2210	100	1.2	
CULG	19	2214	2219	2228	S19	E21	.455		21.5	14	SF		C	2219	60	.7	
CULG	19	2308	2325	2338J	N08	W27	.477		17.9	30U	SN		C	2325	120	1.4	FK
CULG	19	2348	2401	2417	S19	W37	.647		17.2	29	SF		C	2401	40	.5	
CULG	20	0007	0013	0027	N18	W13	.396		19.0	20	SN		C	0013	150	1.7	
LEAR	20	0009	0011	0030	N15	W15	.378		18.9	21	SN	3	C		131		
PEKG	20	0010E	0010	0016	N15	W15	.378		18.9	6D	SB		P	0010	139	1.5	E
CULG	20	0039	0043	0050	N07	W30	.517		17.8	11	SF		C	0043	30	.3	
LEAR	20	0042	0043	0053	N04	W30	.507		17.8	11	SN	3	C		43		
CULG	20	0128	0131	0136	N09	W26	.469		18.1	8	SN		C	0131	60	.7	
LEAR	20	0217	0218	0223	N05	W33	.553		17.6	6	SF	3	C		33		
CULG	20	0223	0229	0243	N20	W18	.467		18.7	20	SN		C	0229	60	.6	T
LEAR	20	0227	0228	0235	N16	W16	.400		18.9	8	SN	3	C		43		
PEKG	20	0228	0229	0236	N17	W17	.422		18.8	8	SN		C	0229	42	.5	D
CULG	20	0346	0352	0405	N13	E72	.955		25.6	19	1F		C	0352	100		
CULG	20	0355	0358	0415	N18	W20	.465		18.7	20	SN		C	0358	60	.6	T
LEAR	20	0517	0518	0527	N16	W19	.422		18.9	10	SN	3	C		43		
CULG	20	0624	0628	0647	S17	W40	.673		17.3	23	SN		C	0628	50	.7	
PEKG	20	0628	0629	0645	S18	W43	.711		17.0	17	SF		C	0629	13	.2	D
CULG	20	0641	0709	0721	N18	W28	.465		18.8	40	SN		C	0709	140	1.5	FT
CULG	20	0715	0724D	0724D	N05	W35	.582		17.7	9D	SN		P	0724	80	1.0	
LEAR	20	0729E	0729U	0743	N03	W37	.605		17.5	14D	SF	2	C		67		
LEAR	20	0809	0811	0815	S16	W42	.693		17.2	6	SF	2	C		30		
LEAR	20	0924E	0927	0940	S08	E41	.661		23.5	16D	SN	2	C		106		
RAMY	20	1330	1338	1354	S04	E40	.643		23.6	24	SN	3	C		43		
RAMY	20	1515	1517	1527	S20	W46	.750		17.2	12	SF	3	C		23		
RAMY	20	1551	1553	1622	N12	W37	.631		17.9	31	SN	3	C		34		
HOLL	20	1637	1637	1654	S17	E14	.354		21.7	17	SF	3	C		20		
HOLL	20	1637	1638	1656	N16	W25	.504		18.8	19	SN	3	C		49		
RAMY	20	1638	1641	1654	N14	W28	.527		18.6	16	SN	3	C		72		
HOLL	20	1701	1706	1730	S18	W47	.754		17.2	29	1B	3	C		172		
RAMY	20	1702	1710	1732	S21	W47	.763		17.2	30	1B	3	C		178		D
CULG	20	2010	2013	2022	N05	W38	.623		18.0	12	SN		C	2013	60	.8	
CULG	20	2027	2037	2047	N14	W38	.652		18.0	20	SF		C	2037	50	.6	
CULG	20	2042	2047	2103	S19	W48	.768		17.3	21	SB		C	2047	70	1.1	
RAMY	20	2044	2049	2053D	S20	W51	.800		17.0	9D	SB	3	C		125		D
HOLL	20	2045	2050	2102	S18	W49	.775		17.2	17	SB	3	C		85		
CULG	20	2110	2113	2120	N13	E62	.892		25.5	10	SF		C	2113	50	1.1	
CULG	20	2147	2149U	2149D	N03	W40	.646		17.9	2D	SN		C	2149	40	.5	
LEAR	21	0049	0050	0056	N14	W29	.540		18.9	7	SF	3	C		42		
LEAR	21	0301	0313	0327	N08	W40	.657		18.1	26	SF	3	C		125		
LEAR	21	0312	0314	0328	N12	W34	.594		18.6	16	SF	3	C		47		
PURP	21	0400	0403	0405J	S19	W52	.807		17.3	5D	1N		P				
LEAR	21	0400	0402	0418	S19	W53	.816		17.2	18	SB	3	C		148		D
RAMY	21	1343	1349	1419	S17	E04	.273		21.9	36	SF	3	C		127		
HOLL	21	1536	1553	1609	N15	W39	.669		18.7	33	SF	3	C		22		
HOLL	21	1644	1651	1659	S18	W62	.890		17.0	15	SN	3	C		34		
RAMY	21	1644	1649	1700	S21	W61	.887		17.1	16	SN	3	C		47		
HOLL	21	1846	1849	1906	S16	E06	.268		22.2	20	SF	3	C		61		
HOLL	21	1847	1853	1929	S16	E16	.364		23.0	42	SF	3	C		58		
RAMY	21	1849	1852	1911	S15	E12	.307		22.7	22	SF	3	C		31		
HOLL	21	1907	1907	1920	N19	E46	.762		25.2	13	SF	3	C		42		
HOLL	21	1908	1920	1939	N15	W41	.693		18.7	31	SF	3	C		33		
HOLL	21	1911	1912	1921	S16	W02	.250		21.6	10	SF	3	C		28		
HOLL	21	1943	2120	2138	N15	W42	.704		18.7	115	SF	3	C		37		
CULG	21	2137	2156	2210	S03	W38	.616		19.1	33	SF		C	2156	60	.8	
CULG	21	2200	2203	2216	S05	E22	.378		23.6	16	SN		C	2203	80	.9	
CULG	21	2205	2221	2222D	N14	W32	.579		19.5	17D	SN		C	2221	80	1.0	
CULG	21	2206	2209	2214	N10	W50	.778		18.2	8	SF		C	2209	50	.8	
CULG	21	2224	2321U	2557U	N05	E12	.237		22.8	213U	1F		C	2321	300	3.0	F
HOLL	21	2246	2257	2313	N29	E64	.929		26.7	27	SF	3	C		52		
HOLL	21	2259	2305	2317	N07	W54	.815		17.9	18	SF	3	C		43		
LEAR	22	0130	0136	0149	N14	W44	.724		18.8	19	SN	3	C		25		
CULG	22	0159	0210	0231	N14	W44	.724		18.8	32	SN		C	0210	120	1.8	

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OBSERV-ATORY	OBSERVED UT				LOCATION					DURA-TION	IM-POR-TANCE	OBS.		MEASUREMENTS			REMARKS
					APPROX.												
	DAY	START	MAX. PHASE	END	LAT.	MER. DIST.	CENTRAL DISTANCE	HALE PLAGE REGION	CMR DAY	MIN.		COND.	TYPE	TIME — UT	MEAS. AREA Mil. of Disk	CORR. AREA Sq. Deg.	
LEAR	22	0206	0207	0213	N14	W45	.735		18.7	70	SB	3	C		39		D
LEAR	22	0206	0209	0231	N06	W37	.612		19.3	25	SN	3	C		45		
LEAR	22	0408	0409	0417	S06	E18	.316		23.5	9	SF	3	C		28		
LEAR	22	0605	0609	0617	N06	W39	.639		19.3	12	SF	3	C		27		
CULG	22	0622	0634U	0636D	N14	W47	.756		18.7	140	SF		P	0634	180	1.7	
RAMY	22	1258	1258	1307	S18	E05	.292		22.9	9	SF	3	C		33		
RAMY	22	1258	1306	1326	N11	W57	.849		18.3	28	SN	3	C		68		D
CULG	22	2027	2035	2046	N15	E36	.634		25.6	19	SN		C	2035	70	.9	
CULG	22	2043	2047	2056	N13	W54	.825		18.8	13	SF		C	2047	40	.7	
CULG	22	2104	2115	2127	S24	E74	.964		28.4	23	SF		C	2115	60		
CULG	22	2207	2212	2229	S21	E71	.949		28.2	22	SF		C	2212	50		
CULG	22	2238	2255	2306	N32	E53	.870		26.9	28	SF		C	2255	60	1.2	F
CULG	22	2256	2303	2329	S18	E00	.280		23.0	33	SF		C	2303	40	.4	
CULG	22	2308	2315	2332	S21	E71	.949		28.3	24	1F		C	2315	120		
CULG	22	2309	2312	2324	N07	W68	.930		17.9	15	SN		C	2312	60	1.5	
CULG	22	2315	2318	2329	N17	E37	.656		25.7	14	SN		C	2318	50	.7	
CULG	22	2329	2330	2337	S03	E08	.141		23.6	8	SF		C	2330	40	.4	
CULG	22	2335	2342	2402	N30	E54	.870		27.0	27	SN		C	2342	60	1.2	
LEAR	22	2338	2338	2355	N28	E53	.856		27.0	17	SF	3	C		28		
CULG	23	0020	0026	0041	N11	W51	.792		19.2	21	SF		C	0026	60	1.0	
CULG	23	0047	0055	0147	N14	W56	.845		18.8	60	2N		C	0055	400	8.0	
LEAR	23	0050	0058	0133	N13	W58	.861		18.7	43	2N	3	C		416		
CULG	23	0311	0317	0340	S15	W17	.363		21.9	29	SN		C	0317	70	.7	
LEAR	23	0315	0317	0329	S16	W17	.373		21.9	14	SF	3	C		53		
LEAR	23	0520	0523	0529D	S19	W20	.438		21.7	90	SF	3	C		46		
CULG	23	0534	0535	0544	N30	E52	.856		27.1	10	SF		C	0535	40	.8	
CULG	23	0626	0635	0655	N13	W60	.878		18.8	29	SN		C	0635	50	1.1	
LEAR	23	0632	0644	0714D	N13	W59	.869		18.8	420	1N	3	C		140		
LEAR	23	0827	0828	0840	N16	E29	.556		25.5	13	SF	3	C		70		
HOLL	23	1544	1544	1553	N13	W68	.934		18.6	9	SF	2	C		22		
RAMY	23	1606	1610	1615	S22	E63	.901		28.4	9	SF	3	C		25		
HOLL	23	1606	1607	1617	S25	E62	.898		28.3	11	SN	2	C		43		
HOLL	23	1841	1846	1907	N29	E43	.782		27.0	26	SF	3	C		103		
CULG	23	2212	2218	2229	S25	E67	.930		29.0	17	SF		C	2218	40		T
CULG	23	2335	2337	2348	S09	W74	.961		18.4	13	SN		C	2337	50		
CULG	23	2357	2403	2413	S24	E60	.883		28.5	16	SF		C	2403	60	1.3	
CULG	24	0042	0051	0101	S26	E60	.886		28.5	19	1B		C	0051	120	2.4	HT
CULG	24	0102	0110	0129	N13	W68	.934		18.9	27	1N		C	0110	140		FKI
CULG	24	0146	0149	0159	S26	E61	.893		28.6	13	SN		C	0149	80	1.7	T
LEAR	24	0148	0151	0159	S26	E58	.871		28.4	11	SF	3	C		44		
CULG	24	0249	0252	0257	S09	W80	.984		18.1	8	SN		C	0252	40		
LEAR	24	0251	0252	0257	S10	W76	.970		18.4	6	SF	3	C				
CULG	24	0416E	0416E	0424	S26	E60	.886		28.7	80	SF		P	0416	60	1.2	T
CULG	24	0453	0502	0508	S23	E10	.393		25.0	15	SN		C	0502	100	1.1	T
CULG	24	0453	0454	0504	N15	E18	.417		25.6	11	SF		C	0454	100	1.1	
CULG	24	0620	0627	0651	N14	W14	.361		23.2	31	SN		C	0627	160	1.8	FL
CULG	24	0629	0634	0651	N04	W13	.247		23.3	22	SN		C	0634	140	1.4	
CULG	24	0654	0702	0713	N08	W88	1.000		17.7	19	SF		C	0702	30		
WEND	24	1151E		1213D	N29	E34	.707		27.0	220	SF		C	1151	28	.4	
RAMY	24	1244	1248	1314	S09	E70	.939		29.8	30	SB	3	C				D
WEND	24	1256E		1313	S10	E71	.945		29.9	170	SN		C	1256	62		
WEND	24	1303	1305	1313	S11	E78	.978		30.4	10	SB		C	1305	25		A
WEND	24	1418	1424	1452	N17	E16	.418		25.8	34	SF		C	1424	82	.9	
RAMY	24	1424	1425	1456	S16	W36	.617		21.9	32	SN	3	C		80		
WEND	24	1426	1430	1443	S16	W36	.617		21.9	17	SN		C	1430	56	.7	
RAMY	24	1432	1435	1443	S26	E65	.919		29.5	11	SF	3	C		22		
WEND	24	1436	1439	1443	S22	E55	.839		28.7	7	SF		C	1439	38	.7	
RAMY	24	1542	1543	1608	S11	E77	.974		30.4	26	SF	3	C				
RAMY	24	1556	1559	1602	S17	W21	.431		23.1	6	SF	3	C		24		
HOLL	24	1620	1628	1639	S10	E71	.945		30.0	19	SF	3	C		37		
RAMY	24	1659	1700	1706	S25	E49	.793		28.4	7	SF	3	C		33		
HOLL	24	1659	1703	1706	S26	E49	.796		28.4	7	SF	3	C		30		
CULG	24	2118	2122	2142	S20	E50	.788		28.6	24	SN		C	2122	60	1.0	F
CULG	24	2144	2151	2159	N04	W20	.356		23.4	15	SF		C	2151	40	.4	
CULG	25	0101	0108	0115	S08	E64	.898		29.8	14	SF		C	0108	40	.9	
CULG	25	0102	0109	0121	N12	E08	.279		25.6	19	SF		C	0109	100	1.0	
CULG	25	0129	0133	0140	S22	E48	.773		28.7	11	SF		C	0133	40	.6	T
CULG	25	0145	0147	0150	S09	E78	.977		30.9	5	SF		C	0147	30		
CULG	25	0223	0231	0319	S09	E68	.927		30.2	56	2N		C	0231	220	5.5	F

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OBSERVATORY	OBSERVED UT				LOCATION					DURATION — MIN.	IMPORTANCE	OBS.		MEASUREMENTS			REMARKS
	DAY	START	MAX. PHASE	END	APPROX. LAT.	APPROX. LNGT. DIST.	CENTRAL DISTANCE	HALE PLAGE REGION	CNP. DAY			CONF.	TYPE	TIME — UT	MEAS. AREA Mill. of Disk	CORR. AREA Sq. Deg.	
LEAR	25	0225	0241	0301	S11	E67	.921		30.1	36	1N	3	C		146		
PEKG	25	0225	0232	0255	S10	E66	.914		30.1	30	1N		C	0232	118	3.1	E
CULG	25	0313	0320	0330	N14	E08	.309		25.7	17	SF		C	0320	100	1.0	
CULG	25	0415	0429	0450	N25	W32	.659		22.8	35	SN		C	0429	60	.7	
LEAR	25	0418	0423	0446	N03	W33	.550		22.7	28	SN	3	C		57		
PEKG	25	0420	0426	0445	N05	W35	.583		22.6	25	SN		C	0426	46	.6	D
CULG	25	0500	0505	0509	S21	E45	.740		28.6	9	SF		C	0505	40	.6	
PEKG	25	0503	0505	0506	S21	E43	.718		28.4	3	SF		C	0505	46	.7	D
LEAR	25	0609	0610	0616	N17	W35	.636		22.6	7	SF	3	C		43		
LEAR	25	0649	0652	0657	S22	E43	.722		28.5	8	SN	3	C		44		
LEAR	25	0702	0704	0709	S24	E44	.741		28.6	7	SN	3	C		52		
LEAR	25	0716	0718	0727	S08	E59	.857		29.7	11	SB	3	C		96		D
LEAR	25	0957	1000	1008	S18	W31	.563		23.1	11	SF	3	C		43		
WEND	25	1243	1252	1254	S22	E39	.679		28.5	11	SF		C	1252	50	.7	H
WEND	25	1330		1401	N21	W02	.394		25.4	31	SN		C	1344	25	.3	D
RAMY	25	1354	1359	1422	S22	E38	.668		28.4	28	1B	3	C		115		D
WEND	25	1358	1402	1411	S23	E43	.726		28.8	13	SB		C	1402	75	1.1	
WEND	25	1411	1411	1417	S23	E36	.651		28.3	6	SN		C	1411	53	.7	EL
HOLL	25	1640	1640	1647	S22	E37	.657		28.5	7	SF	3	C		66		
HOLL	25	1859	1912	1920	S26	E34	.649		28.3	21	SN	3	C		151		
RAMY	25	1906E		1923D	S25	E34	.642		28.3	17D	SN	3	C		36		
RAMY	25	2052	2052U	2101	S09	E51	.779		29.7	9	SN	3	C		44		
CULG	25	2230E	2230U	2238	S06	E50	.766		29.7	8D	SF		C	2230	20	.4	
CULG	25	2251	2252	2308	N24	E55	.861		30.1	17	SF		C	2252	40	.8	
CULG	25	2257E	2257	2310	S22	E33	.612		28.4	13D	SN		C	2257	80	1.0	
CULG	25	2325	2355U	2438	S28	E47	.785		29.5	73	SF		C	2355	100	1.6	
CULG	25	2325	2326	2328	S04	E50	.766		29.7	3	SN		C	2326	40	.6	
CULG	25	2351	2358	2439	N20	W44	.749		22.7	48	1N		C	2358	180	2.7	
CULG	26	0014	0018	0027	N30	E18	.596		27.4	13	SF		C	0018	30	.4	
CULG	26	0158	0206U	0206J	S10	E55	.821		30.2	8D	SN		P	0206	70	1.1	F
CULG	26	0227E	0227U	0230D	S23	E30	.584		28.4	3D	SF		P	0227	40	.5	H
LEAR	26	0233	0237	0243	S24	E29	.580		28.3	10	SF	3	C		112		
LEAR	26	0306	0309	0314	N24	E51	.830		30.0	8	SF	3	C		38		
CULG	26	0336	0340	0414	N04	W46	.724		22.7	38	SN		C	0346	80	1.2	
PURP	26	0617	0628	0635	S26	E29	.596		28.4	18	1N		C				
LEAR	26	0624	0625	0633	S25	E28	.578		28.4	9	SN	3	C		105		
PURP	26	0722E	0733	0800	S22	E33	.611		28.8	38D	1B		C	0733	377	4.8	KKW
PURP	26	0722E	0729		S22	E33	.611		28.8								
PEKG	26	0722	0731	0751	S21	E33	.605		28.8	29	1B		C	0731	315	4.1	F
PURP	26	0806E	0800	0803	N29	E11	.544		27.2	3D	1F		P				
RAMY	26	1354	1355	1404	S20	E29	.551		28.8	10	SF	3	C		41		
HOLL	26	1639	1643	1658	S10	E49	.758		30.4	19	SF	3	C		35		
RAMY	26	1654	1658	1708	S26	E22	.527		28.4	14	SF	3	C		77		
HOLL	26	1655	1658	1706	S29	E23	.567		28.4	11	SF	3	C		107		
HOLL	26	1714	1747	1827	N11	W48	.761		23.1	73	SF	3	C		140		
HOLL	26	1858	1908	1918	N23	E35	.675		29.4	20	SF	3	C		47		
RAMY	26	2007	2009	2025	N27	E03	.491		27.1	18	SF	3	C		80		
HOLL	26	2009	2015	2025	N24	E03	.445		27.1	16	SF	3	C		97		
CULG	26	2013E	2017	2021	N28	E05	.510		27.2	8D	SF		C	2017	80	.9	
CULG	26	2014	2017	2021	S21	E22	.477		28.5	7	SN		C	2017	60	.7	
RAMY	26	2015	2015	2020	S22	E21	.476		28.4	5	SF	3	C		28		
CULG	26	2030	2052U	2114U	S10	E45	.712		30.2	44U	SF		C	2052	70	1.0	JT
CULG	26	2032	2036	2115	S24	E22	.506		28.5	43	SN		C	2036	120	1.4	H
CULG	26	2039	2042	2048	S33	W44	.781		23.6	9	SF		C	2042	20	.3	
CULG	26	2310	2318	2333	N24	E41	.740		30.0	23	SN		C	2318	90	1.4	
CULG	26	2314U	2348	2449U	S10	E44	.699		30.3	95U	1N		C	2348	170	2.4	JT
HOLL	26	2315	2316	2329	N20	E39	.698		29.9	14	SN	3	C		86		
MANI	26	2315	2317	2322	N24	E39	.721		29.9	7	SN	1	V		50	.8	
CULG	26	2317	2326	2344	S24	E20	.486		28.5	27	SN		C	2326	90	1.0	H
CULG	27	0002	0008	0019	S25	E19	.488		28.4	17	SN		C	0008	80	1.0	HT
CULG	27	0101	0121	0137	S10	E37	.610		29.8	36	SF		C	0121	80	1.0	
CULG	27	0151	0156	0212J	N28	E02	.505		27.2	21U	SF		C	0156	80	.9	
CULG	27	0152	0234	0311	N25	E39	.726		30.0	79	SN		C	0234	80	1.2	
CULG	27	0235	0241	0253	S21	E18	.433		28.5	18	1B		C	0241	200	2.2	T
PEKG	27	0238	0239	0243	N25	E40	.736		30.1	5	SF		P	0239	34	.5	E
PURP	27	0241	0242	0245	S22	E18	.445		28.5	4	SN		C				E
CULG	27	0248	0251	0254	S24	E18	.467		28.5	6	SF		C	0251	30	.3	HT
LEAR	27	0319	0324	0327J	N25	E39	.726		30.1	8D	SN	3	C		22		
PEKG	27	0425	0427	0437	N25	E38	.717		30.0	12	SF		P	0427	34	.5	E
PEKG	27	0427E	0427		S23	E23	.507		28.9		SF		P	0427	34	.4	D

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OBSERV-ATORY	OBSERVED UT				LOCATION					DURA-TION	IM-POR-TANCE	OBS.		MEASUREMENTS			REMARKS
	DAY	START	MAX. PHASE	END	APPROX. LAT.	APPROX. LONG. DIST.	CENTRAL DISTANCE	HALE PLAGE REGION	CMR DAY	MIN.		CONF.	TYPE	TIME — UT	MEAS. AREA Mil. of Dis.	CORR. AREA Sq. Deg.	
CULG	27	0427	0452	0549U	S10	E40	.649		30.2	82U	SF		C	0452	60	.8	JT
PEKG	27	0435	0437	0445	S10	E41	.662		30.3	10	SF		P	0437	50	.7	D
CULG	27	0540U	0546	0613D	S22	E21	.476		28.8	33D	1N		C	0546	290	3.3	
PURP	27	0540	0542	0557	S22	E23	.498		29.0	17	1N		C				
PEKG	27	0540	0543	0625	S22	E21	.476		28.8	45	SN		C	0543	71	.8	E
PEKG	27	0740	0745	0759	S27	E21	.529		28.9	19	SN		C	0745	88	1.1	E
PEKG	27	0740	0746	0755	N27	E29	.649		29.5	15	SF		C	0746	63	.9	D
ATHN	27	0748E	0750	0816	S22	E19	.455		28.8	28D	SB	2	C		159		D
ATHN	27	1010E	1012	1014D	S23	E17	.446		28.7	4D	1B	3	C		318		D
RAMY	27	1332	1332	1341	N26	E33	.677		30.0	9	SF	3	C		29		
RAMY	27	1442	1443	1457	S08	E32	.535		30.0	15	SF	3	C		82		
HOLL	27	1701	1701	1705	S24	E13	.425		28.7	4	SF	3	C		23		
HOLL	27	1720	1721	1730	N27	E24	.606		29.5	10	SF	3	C		32		
HOLL	27	1754	1754	1807	S26	E15	.466		28.9	13	SF	3	C		22		
RAMY	27	1802	1810	1906	S10	E31	.526		30.1	64	SN	3	C		106		
HOLL	27	1804	1810	1903	S10	E32	.541		30.2	59	SN	3	C		113		
CULG	27	2129	2130	2135	N25	E29	.631		30.1	6	SF		C	2130	70	.9	
CULG	27	2212	2215U	2235U	S21	E09	.354		28.6	23U	SF		C	2215	50	.6	
CULG	27	2219	2226U	2250D	S13	E30	.524		30.2	31D	SF		P	2226	110	1.3	
CULG	27	2241	2243	2250U	S23	E11	.396		28.8	9U	SN		C	2243	60	.7	
HOLL	27	2242	2242	2247	S24	E10	.404		28.7	5	SN	3	C		28		
CULG	27	2309	2314	2355U	S24	E10	.404		28.7	46U	SN		C	2314	120	1.3	HF
CULG	27	2315	2316	2322	S03	E28	.469		30.1	7	SF		C	2316	90	1.0	H
CULG	27	2338U	2407	2445U	S12	E25	.448		29.9	67U	SN		C	2407	70	.8	
CULG	27	2344	2344	2346	S10	E55	.821		1.1	2	SF		C	2344	20	1.0	
CULG	28	0100	0109	0121	S25	E03	.386		28.3	21	SB		C	0109	100	1.1	H
CULG	28	0301	0302	0309	S12	E30	.518		30.4	8	SF		C	0302	100	1.2	
CULG	28	0318	0321	0343	S07	W63	.890		23.4	25	1F		C	0321	110	2.5	F
CULG	28	0353	0356	0410	S12	E29	.504		30.3	17	SN		C	0356	38	.3	
CULG	28	0359	0402	0411U	S21	E06	.332		28.6	12U	1N		C	0402	200	2.1	F
CULG	28	0434	0437	0439	S23	E07	.368		28.7	5	SN		C	0437	110	1.2	
PEKG	28	0451D	0456	0510	S11	E20	.368		29.7	19D	SN		P	0456	126	1.4	E
LEAR	28	0609	0611	0617	N14	E13	.357		29.2	8	SF	2	C		41		
LEAR	28	0902	0903	0907	N14	E10	.330		29.1	5	SF	3	C		31		
LEAR	28	0923	0923	0934	N15	E10	.344		29.1	11	SN	3	C		43		
LEAR	28	0950	0951	0954	N14	E07	.307		28.9	4	SN	3	C		42		
WEND	28	1131	1134	1140	S22	E01	.334		28.6	9	1N		C	1134	275	3.0	
ATHN	28	1135E	1138	1145	S23	E01	.351		28.6	10D	SB	2	C		80		D
RAMY	28	1244	1312	1436	N15	E08	.329		29.1	112	SF	3	C		53		
RAMY	28	1432	1433	1442	S22	W01	.334		28.5	10	SF	3	C		87		
RAMY	28	1540	1542	1545	S24	W04	.372		28.4	5	SF	3	C		22		
HOLL	28	1721E	1723U	1821	S20	E01	.301		28.8	60D	SN	2	C		177		
HOLL	28	1904	1907	1929	S22	W05	.344		28.4	25	1B	3	C		308		
PALE	28	1905	1908	1929	S22	W04	.340		28.5	24	SB	2	C		133		
HOLL	28	1924	1928	1934	N15	E03	.305		29.0	10	SN	3	C		67		
HOLL	28	1951	2000	2010	S24	W01	.367		28.8	19	SN	3	C		62		
HOLL	28	2122	2137	2149D	S22	W06	.348		28.4	27D	SB	3	C		161		D
LEAR	28	2306E	2312	2317	S24	W04	.372		28.7	11D	SN	3	C		60		
LEAR	28	2342E	2342U	0037	S23	W08	.373		28.4	55D	SB	3	C		60		D
LEAR	28	2348	0002	0034	S08	E14	.259		30.0	46	SF	3	C		147		
PALE	29	0026E	0029	0035	S22	W08	.356		28.4	9D	SF	2	C		49		
PURP	29	0026E	0029	0038	S22	W09	.363		28.3	12D	SN		C				E
LEAR	29	0037	0042	0051	S09	E14	.264		30.1	14	SF	3	C		39		
LEAR	29	0149	0155	0200	S24	W05	.373		28.7	11	1N	3	C		250		
PALE	29	0150	0156	0159	S21	W06	.330		28.6	9	SF	2	C		51		
PURP	29	0152	0155	0158	S21	W09	.348		28.4	6	1N		C				
PURP	29	0230	0233	0238D	S21	W07	.336		28.6	8D	SN		C				D
LEAR	29	0316	0322	0325	N14	E00	.286		29.1	9	SN	3	C		38		
LEAR	29	0323	0326	0344	S24	W06	.377		28.7	21	SN	3	C		166		
PEKG	29	0326	0328	0337	S26	W07	.412		28.6	11	SF		P	0328	17	.2	E
PURP	29	0329	0330	0343	S25	W06	.393		28.7	14	1N		C				
PEKG	29	0357	0401	0408	S21	W10	.355		28.4	11	SN		C	0401	105	1.2	E
PURP	29	0359	0400	0408	S21	W10	.355		28.4	9	1N		C				
PEKG	29	0400	0401	0409	S19	W15	.374		28.0	9	SN		C	0401	34	.4	E
LEAR	29	0422	0426	0441	S23	W10	.384		28.4	19	1B	3	C		414		D
PEKG	29	0423	0426	0436	S21	W09	.348		28.5	13	SN		C	0426	126	1.4	E
PURP	29	0424	0425	0431	S21	W10	.355		28.4	7	1B		C	0425	453	4.9	
PEKG	29	0600	0602	0615	S21	W11	.363		28.4	15	SF		C	0602	63	.7	E
LEAR	29	0600	0600	0616	S22	W11	.377		28.4	16	SF	3	C		29		

Hα SOLAR FLARES

DECEMBER 1980

OBSERV-ATORY	OBSERVED UT				LOCATION					DURA-TION	IM-POR-TANCE	OBS.		MEASUREMENTS			REMARKS
					APPROX.		CENTRAL	HALE	CMP.								
	DAY	START	MAX. PHASE	END	LAT.	MER. DIST.	DISTANCE	PLAGE REGION	DAY	MIN.		COND.	TYPE	TIME UT	MEAS. AREA Mil. of Disk	CORR. AREA Sq. Deg.	
LEAR	29	0602	0606	0625	S15	E14	.318		30.3	23	SF	3	C		107		
PEKG	29	0603	0608	0623	S11	E11	.238		30.1	20	SF		C	0608	13	.1	D
LEAR	29	0603	0606	0611	N15	W02	.305		29.1	8	SN	3	C		32		
PEKG	29	0608E	0608		S14	E14	.307		30.3		SF		P	0608	50	.5	E
LEAR	29	0655	0657	0703	S23	W12	.398		28.4	8	SF	3	C		26		
PEKG	29	0722	0724	0732	S24	W13	.419		28.3	10	SB		C	0724	139	1.6	E
LEAR	29	0722	0726	0733	S24	W12	.412		28.4	11	SN	3	C		105		D
PURP	29	0724	0725	0733	S25	W12	.426		28.4	9	1N		C				H
LEAR	29	0739	0747	0759	S26	W11	.433		28.5	20	SN	3	C		46		
LEAR	29	0851	0857	0924	S23	W12	.398		28.5	33	SB	3	C		196		
WEND	29	0852	0854	0902	S23	W08	.371		28.8	10	SN		C	0854	25	.3	
WEND	29	0852	0900	0904	S23	W13	.406		28.4	12	SN		C	0900	56	.6	TZ
ATHN	29	0859E	0902U	0908U	S23	W10	.384		28.6	9D	SB	2	C		95		
LEAR	29	0924	0934	0944	N14	W05	.298		29.0	20	SN	3	C		35		
WEND	29	1033	1037	1052	S23	W14	.414		28.4	19	SN		C	1037	81	.9	
WEND	29	1125	1132	1146	S26	W12	.439		28.6	21	1N		C	1132	206	2.4	
ATHN	29	1132E	1135U	1148	S23	W10	.384		28.7	16D	SB	2	C		64		
RAMY	29	1220	1221	1237	S24	W10	.398		28.8	17	SF	3	C		34		
RAMY	29	1238	1317	1318U	S22	W15	.411		28.4	40D	2B	3	C		678		D
WEND	29	1241	1248	1254	S26	W09	.421		28.9	13	SN		C	1248	88	1.0	E
ATHN	29	1300E	1308U	1336U	S23	W10	.384		28.8	36D	SB	2	C		111		
RAMY	29	1301	1302	1304	N15	W05	.314		29.2	3	SF	3	C		22		
WEND	29	1307	1323	1420	S27	W07	.427		29.0	73	2N		C	1323	863	10.0	F
RAMY	29	1423	1433	1517	S23	W16	.432		28.4	54	SN	3	C		108		D
WEND	29	1426	1432	1441	S23	W16	.432		28.4	15	SN		C	1432	94	1.0	
WEND	29	1447	1451	1510	S25	W13	.433		28.6	23	1N		C	1451	181	2.1	
WEND	29	1506	1508	1514	S23	W16	.432		28.4	8	SN		C	1508	119	1.4	
RAMY	29	1522	1529	1544	S22	W17	.430		28.4	22	SN	3	C		167		
RAMY	29	1617	1619	1626	S22	W18	.440		28.3	9	SB	3	C		82		
RAMY	29	1958	1959	2005	S21	W19	.440		28.4	7	SF	3	C		54		
RAMY	29	2029	2033	2040	S24	W20	.482		28.4	11	SB	3	C		70		
LEAR	29	2248	2253	2317	S23	W18	.451		28.6	29	SN	3	C		72		
LEAR	29	2306E	2312	2317	S24	W04	.370		29.7	11D	SN	3	C		60		
LEAR	30	0023	0030	0039	S23	W19	.460		28.6	16	SN	3	C		73		
LEAR	30	0105	0114	0131	N26	W04	.485		29.7	26	SN	3	C		50		
PURP	30	0106	0115	0125	N28	W04	.515		29.7	19	SB		C				
PEKG	30	0107	0108	0125	N26	W05	.487		29.7	18	SN		P	0108	42	.5	D
PEKG	30	0113	0114	0125	N15	W16	.403		28.9	12	SF		C	0114	25	.3	E
LEAR	30	0114	0117	0127	N14	W13	.360		29.1	13	SF	3	C		51		
PEKG	30	0246	0249	0251	S24	W25	.532		28.2	5	SF		C	0249	50	.6	D
LEAR	30	0257	0258	0320	S09	W01	.110		30.0	23	SF	3	C		29		
LEAR	30	0308	0308	0320	S23	W20	.470		28.6	12	SF	3	C		39		
PEKG	30	0310	0311	0314	S23	W25	.524		28.3	4	SN		C	0311	17	.2	D
PEKG	30	0311E	0311		S27	W17	.488		28.9		SF		P	0311	34	.4	E
LEAR	30	0325	0326	0331	S21	W23	.483		28.4	6	SN	3	C		48		
PEKG	30	0350	0356	0413	N14	W15	.381		29.0	23	SN		C	0356	59	.6	E
PEKG	30	0410	0413	0415	N26	W07	.493		29.6	5	SN		C	0413	17	.2	D
LEAR	30	0450	0450	0455	N14	W15	.381		29.1	5	SN	3	C		28		
PEKG	30	0614	0615	0625	S09	W05	.139		29.9	11	SF		C	0615	8	.1	D
PEKG	30	0615E	0615		S27	W19	.505		28.8		SF		P	0615	13	.1	D
LEAR	30	0652	0853	0902	N14	W17	.403		29.0	130	SN	2	C		23		
LEAR	30	0722	0734	0738	N18	W63	.909		25.6	16	SF	3	C		12		
LEAR	30	0724	0726	0729U	S08	W06	.138		29.9	50	SB	3	C		119		D
PEKG	30	0726	0727	0729	S07	W06	.128		29.9	3	SN		C	0727	17	.2	D
LEAR	30	0808	0809	0812	N14	W17	.403		29.1	4	SF	3	C		27		
LEAR	30	0819	0820	0830	S08	W06	.138		29.9	11	SN	3	C		136		
LEAR	30	0834	0839	0850	S28	W24	.561		28.6	16	SF	3	C		52		
LEAR	30	0900	0902	0916	S25	W25	.542		28.5	16	SF	3	C		77		
LEAR	30	1005	1006	1012	N13	W18	.404		29.1	7	SF	2	C		61		
CULG	30	2023	2025	2030	S23	W34	.625		28.3	7	SN		C	2025	140	1.8	H
CULG	30	2040	2050U	2101U	S31	W31	.652		28.5	21D	SF		P	2050	60	.8	
CULG	30	2045	2047	2100U	N10	W14	.324		29.8	15U	SN		C	2047	50	.5	K
CULG	30	2053	2101U	2101U	S05	W07	.128		30.3	8U	SF		P	2101	80	.8	
CULG	30	2123	2124	2129	S25	W34	.637		28.3	6	SF		C	2124	70	.9	T
CULG	30	2204	2213	2224U	S21	W32	.589		28.5	20D	SB		P	2213	170	2.0	TF
CULG	30	2208	2213	2237U	N14	W25	.499		29.0	29U	SN		C	2213	120	1.2	
HOLL	30	2211	2214	2232	N12	W24	.470		29.1	21	SF	3	C		55		
HOLL	30	2212	2215	2222	S21	W33	.601		28.5	10	SN	3	C		56		
CULG	30	2240	2242	2249	S25	W30	.594		28.7	9	SF		C	2242	120	1.4	T
CULG	30	2256	2258	2315	N09	E45	.724		3.3	19	SF		C	2258	60	.9	
CULG	30	2347	2348	2350	S23	W35	.636		28.4	3	SF		C	2348	90	1.2	TH

Hα SOLAR FLARES

DECEMBER 1980

OBSERVATORY	OBSERVED UT				LOCATION					DURATION — MIN.	IMPORTANCE	OBS.		MEASUREMENTS			REMARKS
	DAY	START	MAX. PHASE	END	APPROX. LAT.	APPROX. MER. DIST.	CENTRAL DISTANCE	HALE PLAGE REGION	CMP. DAY			CONF.	TYPE	TIME — UT	MEAS. AREA Mill. of Disk	CORR. AREA Sq. Deg.	
CULG	30	2352	2403	2510U	S10	W13	.256		30.0	78U	SF		C	2403	80	.8	
CULG	31	0038	0044	0100	S21	W35	.624		28.4	22	SB		C	0044	100	1.3	T
PURP	31	0045	0048	0049J	S21	W35	.624		28.4	4D	SN		P				E
CULG	31	0200	0202	0223	S21	W36	.635		28.4	23	SN		C	0202	100	1.3	TKH
CULG	31	0217	0219	0238U	S10	W15	.284		30.0	13U	SF		C	0219	90	.9	
CULG	31	0345E	0345E	0408J	S21	W36	.635		28.5	23D	SN		P	0345	60	.8	TH
CULG	31	0349	0350	0356	S10	E14	.269		1.2	7	SF		C	0350	40	.4	
CULG	31	0501E	0501E	0503D	S21	W37	.647		28.4	2D	SN		P	0501	60	.8	T
LEAR	31	0602	0603	0702	N25	W22	.575		29.6	60	SF	3	C		81		
PURP	31	0609E	0609	0625	N25	W22	.575		29.6	16D	1F		P				
CULG	31	0619E	0620D	0628J	N26	W24	.602		29.5	9D	1N		P	0620	300	3.6	F
PURP	31	0659	0705	0705J	N13	W49	.768		27.7	6D	SN		P				D
LEAR	31	0702	0704	0708	N14	W52	.811		27.4	6	SN	3	C		32		
CULG	31	0728	0731	0734	S10	E13	.255		1.3	6	SF		C	0731	60	.6	
CULG	31	0734	0739	0745	N14	W50	.792		27.6	11	SF		C	0739	40	.7	
CULG	31	0755	0758	0804J	S20	W39	.665		28.4	9D	SN		P	0758	100	1.3	T
LEAR	31	0816	0821	0841	N13	W28	.530		29.2	25	SN	3	C		134		
WEND	31	0927	0931	0936	S21	W39	.670		28.5	9	SN		C	0931	58	.7	
LEAR	31	0927	0930	0935	S21	W39	.670		28.5	8	SN	3	C		115		
HOLL	31	1921	1940	1958	N13	W37	.643		29.0	37	SF	3	C		41		
CULG	31	2056	2116	2140J	N28	W32	.689		29.5	44U	1F		C	2116	240	3.4	F
CULG	31	2136	2137	2139	N16	W58	.869		27.6	3	SF		C	2137	40	.8	
CULG	31	2220U	2227U	2242J	N27	W24	.613		30.1	22D	SN		P	2227	130	1.7	
HOLL	31	2224	2226	2238	N27	W24	.613		30.1	14	SN	3	C		67		
PALE	31	2225	2226	2230	N26	W24	.602		30.1	5	SF	3	C		22		

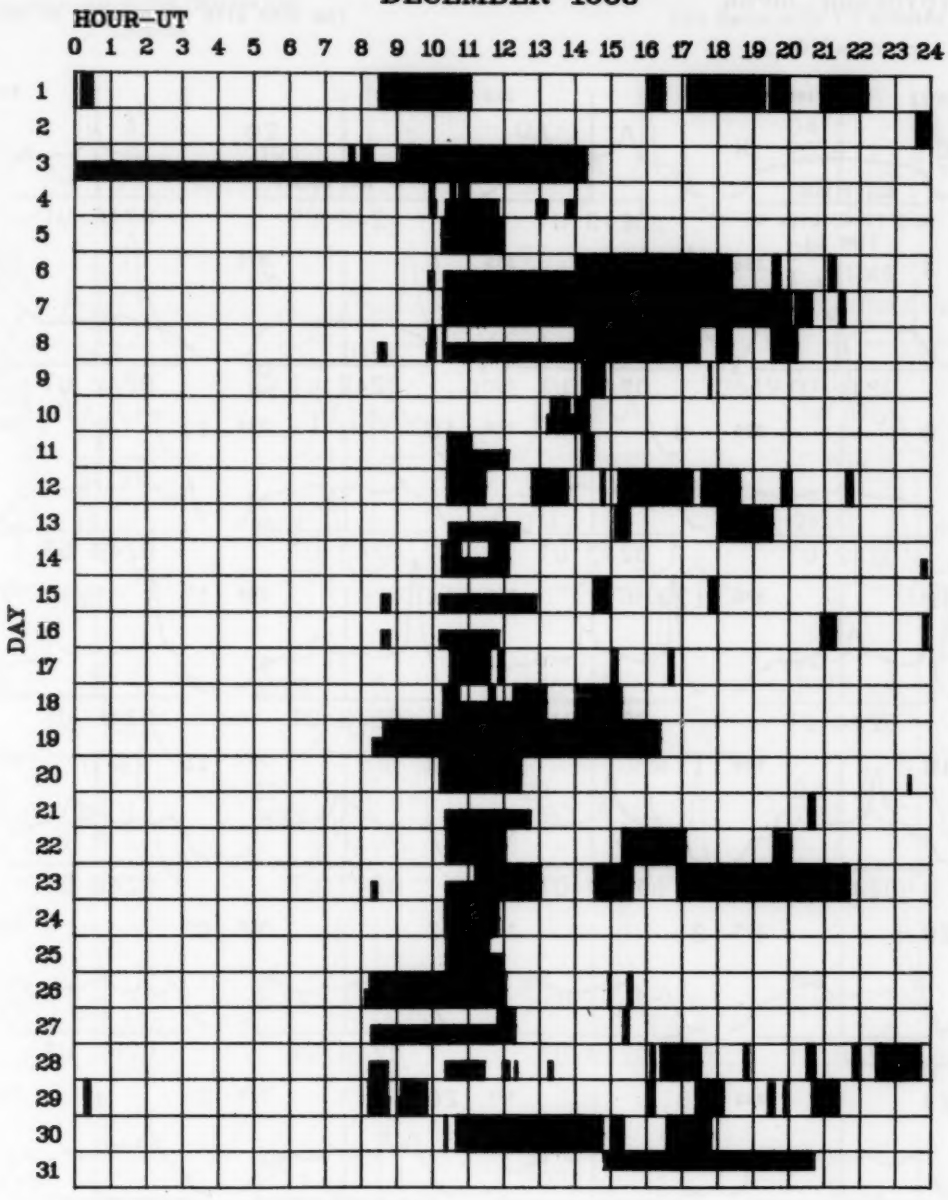
"REMARKS":

A = Eruptive prominence whose base is less than 90° from central meridian.
B = Probably the end of a more important flare.
C = Invisible 10 minutes before.
D = Brilliant point.
E = Two or more brilliant points.
F = Several eruptive centers.
G = No visible spots in the neighborhood.
H = Flare accompanied by high-speed dark filament.
I = Active region very extended.
J = Distinct variations of plage intensity before or after the flare.
K = Several intensity maxima.
L = Existing filaments show signs of sudden activity.
M = White-light flare.
N = Continuous spectrum shows effects of polarization.
O = Observations have been made in the H and K lines of CaII.
P = Flare shows helium D3 in emission.
Q = Flare shows Balmer continuum in emission.
R = Marked asymmetry in H-alpha line suggests ejection of high-velocity material.
S = Brightness follows disappearance of filament in same position.
T = Region active all day.
U = Two bright branches, parallel or converging.
V = Occurrence of an explosive phase: important, expansion within roughly 1 minute that often includes a significant intensity increase.
W = Great increase in area after time of maximum intensity.
X = Unusually wide H-alpha line.
Y = System of loop-type prominences.
Z = Major sunspot umbra covered by flare.

INTERVALS OF NO FLARE PATROL OBSERVATION

FOR PRECEDING SOLAR FLARE TABLE

DECEMBER 1980



Observatories included in total patrol:

Athens	Culgoora	Istanbul	Manila	Peking	Ramey
Bucharest	Holloman	Learmonth	Palehua	Purple Mt.	Wendelstein

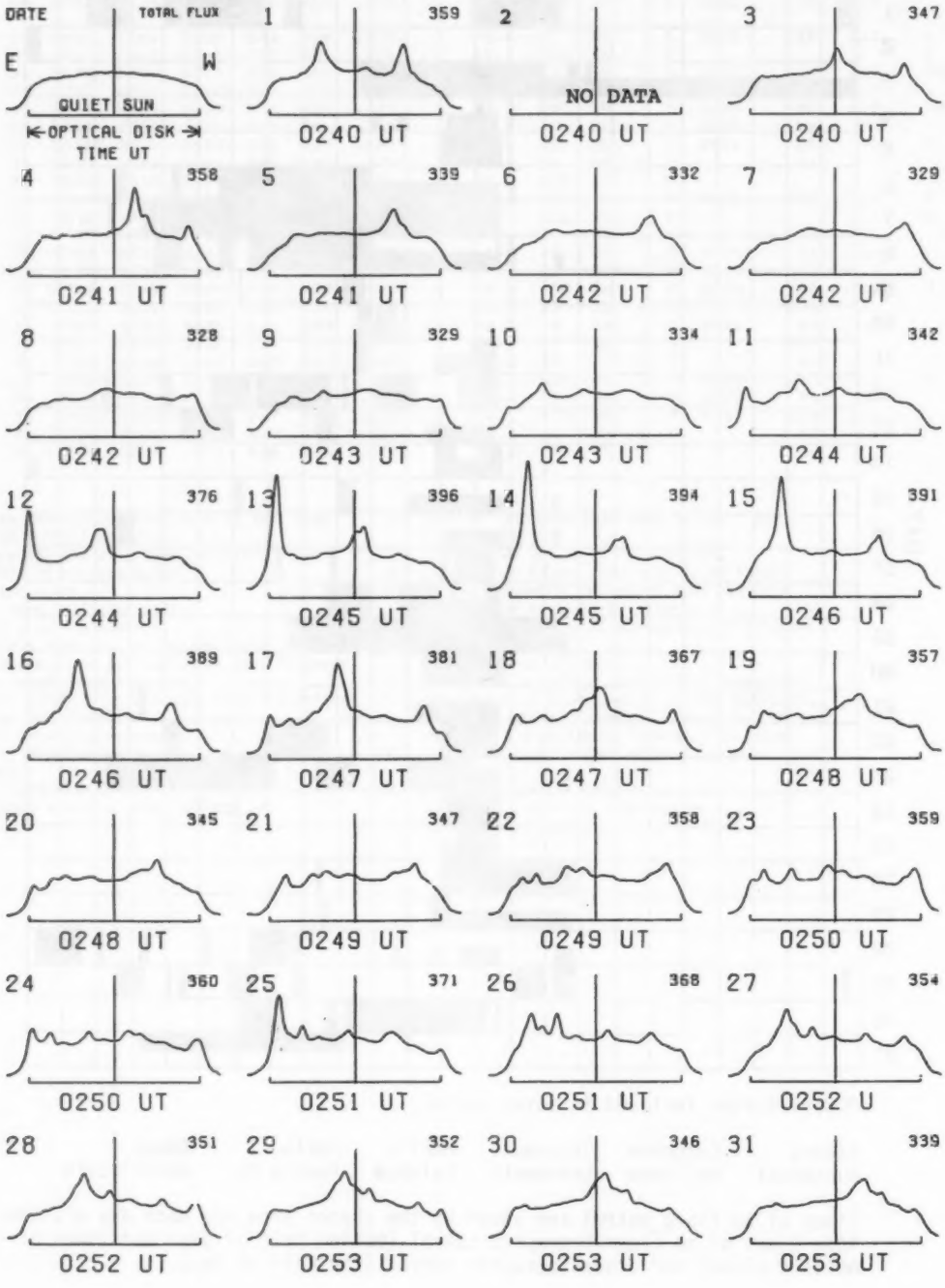
Times of no flare patrol are shown by the shaded area for each day divided into times of no cinematographic patrol (bottom half of day) and times of neither visual nor cinematographic patrol (top half of day).

EAST-WEST SOLAR SCANS

DECEMBER 1980

TOYOKAWA, JAPAN

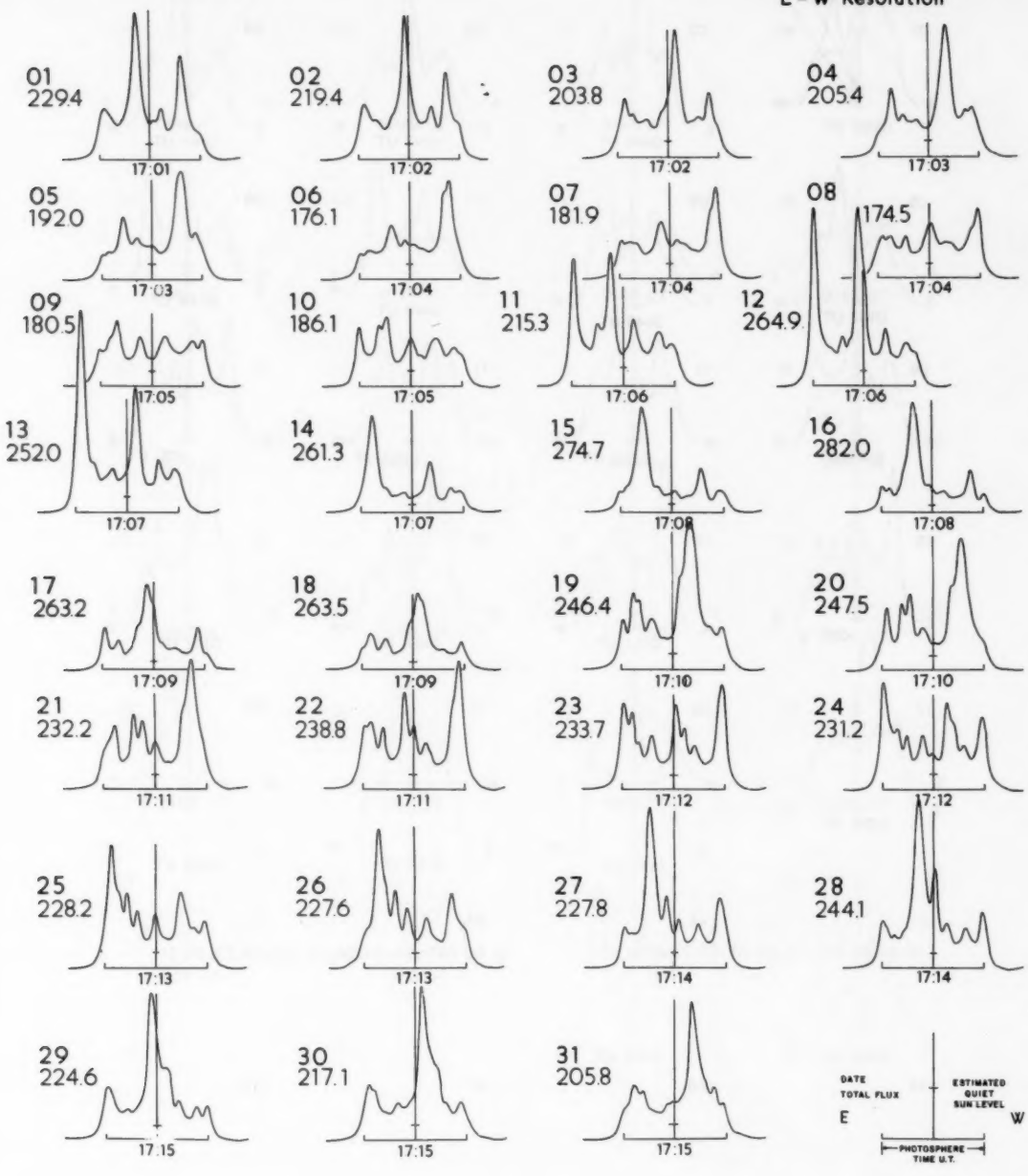
3 CM
FAN BEAM WITH 1.1 MINUTES OF ARC



EAST-WEST SOLAR SCANS
DECEMBER 1980

ALGONQUIN RADIO OBSERVATORY
CANADA

10·7 cm
Fan Beam with 1·5 minutes of arc
E-W Resolution

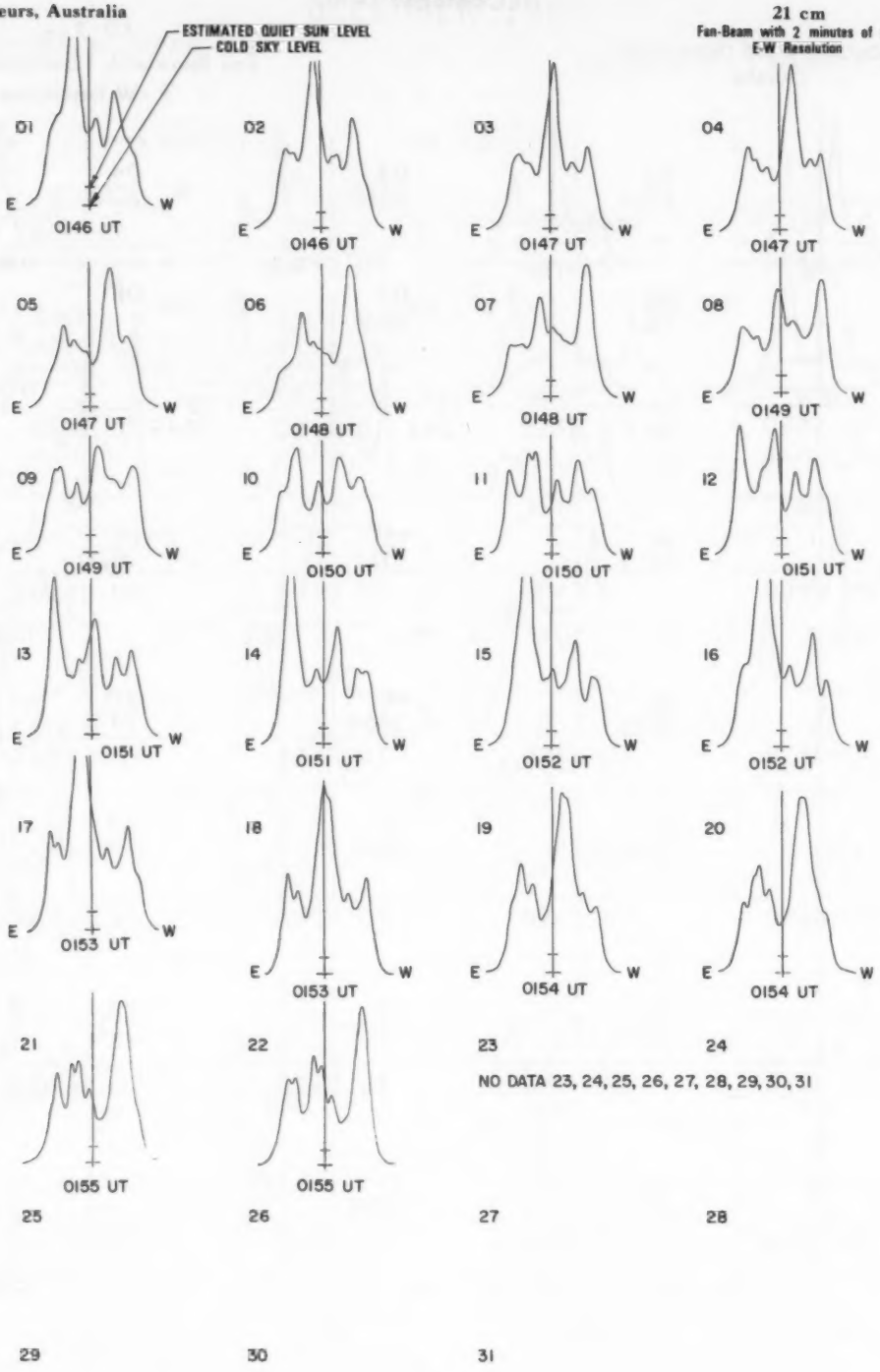


EAST-WEST SOLAR SCANS

DECEMBER 1980

Fleurs, Australia

21 cm
Fan-Beam with 2 minutes of arc
E-W Resolution



23 24

NO DATA 23, 24, 25, 26, 27, 28, 29, 30, 31

25 26 27 28

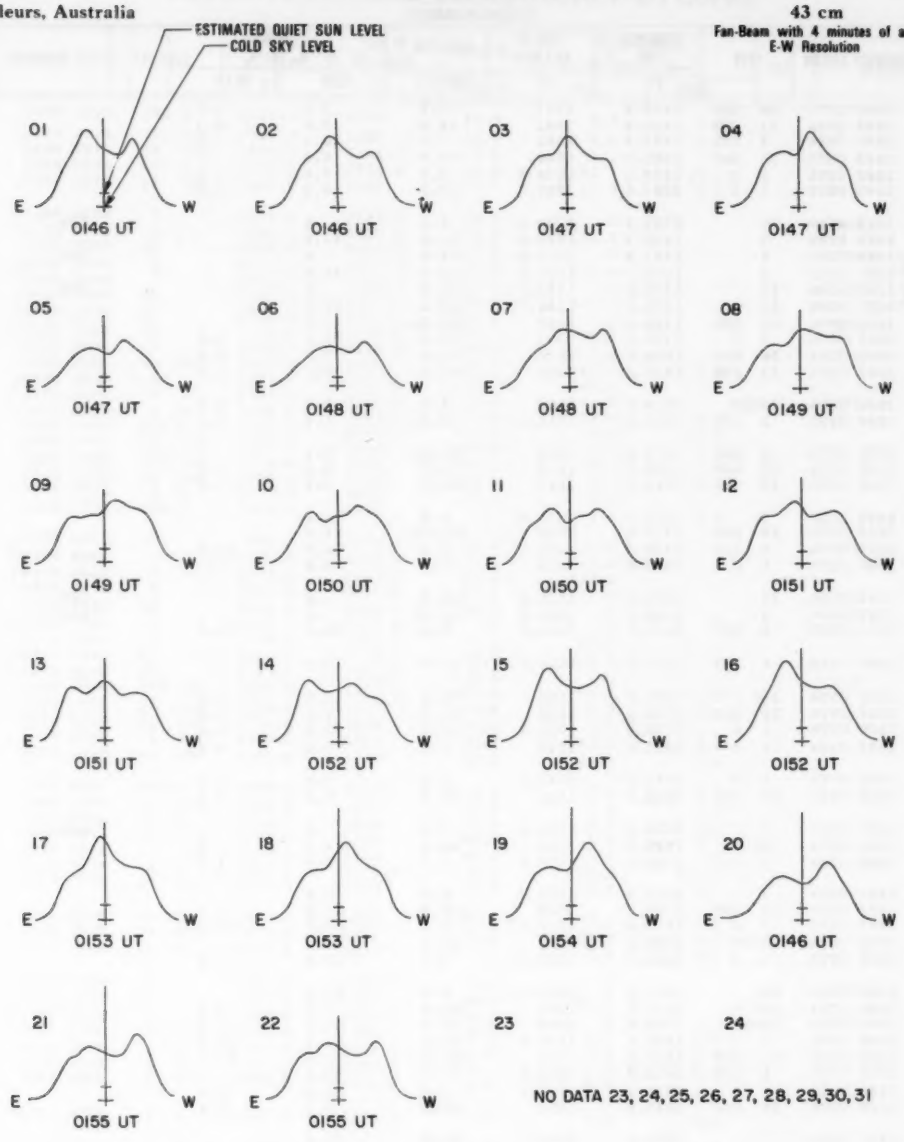
29 30 31

EAST-WEST SOLAR SCANS

DECEMBER 1980

Fleurs, Australia

43 cm
Fan-Beam with 4 minutes of arc
E-W Resolution



SOLAR RADIO EMISSION
SELECTED FIXED FREQUENCY EVENTS

DECEMBER 1980

DAY OF MONTH	FREQUENCY	STATION	TYPE	STARTING TIME	TIME OF MAXIMUM	DURATION	FLUX DENSITY 10^{-22} Wm^{-2} Hz^{-1}		INT	REMARKS
				UT	UT	MINUTES	PEAK	MEAN		
01	2800	OTTA	20 GRF	1440.0	1507	70.0	3.8	1.9		
	2800	OTTA	21 GRF	1800.0	1803	40.0	8.6	4.3		
	2800	OTTA	4 S/F	1804.0	1806	7.0	10.4	4.8		
	2800	OTTA	21 GRF	1905.0	1940	95.0	6.0			
	2800	OTTA	1 S	1930.5	1930.8	2.0	4.6	2.0		
	2695	PENT	1 S	2007.0	2008.3	10.0	4.2	2.0		
02	3200	BERN	45	0745.2	0746.0	6.0	.0			OPR
	8400	BERN	3	1036.2	1046.0	21.0	41.0			
	3200	BERN	4	1102.0	1124.0	90.0	.0			OPR
	8400	BERN	4	1110.0	1123.8	80.0	246.0			
	3200	BERN	46	1234.0	1243.0	120.0	.0			OPR
	8400	BERN	46	1235.0	1246.7	120.0	68.0			
	2800	OTTA	21 GRF	1320.0	1355	210.0D	17.2			
	2800	OTTA	3 S	1339.0	1342	10.0	21.6	6.0		
	2800	OTTA	20 GRF	1820.0	1830	40.0	3.4	2.0		
	2800	OTTA	22 GRF	1915.0	2005	95.0	9.2	4.0		
03	2800	OTTA	24OAR	1910.0	1916	6.0	4.2	2.1		
	2800	OTTA	2 S/F	1911.0	1912.4	2.0	6.4	2.2		
04	2800	OTTA	20 GRF	1415.0	1435	85.0D	4.2			
	2800	OTTA	20 GRF	1600.0	1622	75.0	4.2	2.1		
	2800	OTTA	22 GRF	1910.0	2015	105.0	2.4	1.2		
05	8400	BERN	3	1125.3	1126.8	9.0	94.0			
	2800	OTTA	20 GRF	1415.0	1436	105.0D	14.6			
	2800	OTTA	4 S/F	1430.5	1432.5	5.0	36.0	12.0		
	2800	OTTA	1 S	1832.0	1835	8.0	2.6	1.3		
06	3200	BERN	20	1000.0	1135.2	240.0	.0			OPR
	3200	BERN	3	1430.0	1432.3	10.0D	.0			OPR
	2695	PENT	4 S/F	2140.0	2151.7	9.0	55.2	13.8		
07	2800	OTTA	4 S/F	1617.0	1623.5	11.0	15.2	4.0		
08	2800	OTTA	24O R	1450.0	1530	40.0	3.6	1.8		
	2800	OTTA	20 GRF	1545.0	1630	90.0	3.6	2.0		
	2800	OTTA	1 S	1730.0	1731.2	2.0	2.6	1.8		
	2800	OTTA	1 S	2035.0	2037	6.0	9.2	4.4		
09	2800	OTTA	1 S	1441.5	1442.2	2.0	3.8	1.3		
	2800	OTTA	22 GRF	1520.0	1555	60.0	6.4	2.4		
10	3200	BERN	3	1220.5	1220.8	3.0	.0			OPR
	2800	OTTA	24O P	1505.0	1545	40.0	4.2	2.1		
	2800	OTTA	2 S/F	1726.9	1727.9	2.5	6.0	4.4		
11	8400	BERN	3	1216.9	1218.2	9.0	22.0			
	2800	OTTA	23 GRF	1445.0	1540	230.0	14.2	6.0		
	2800	OTTA	3 S	1532.0	1532.2	1.5	60.0	15.0		
	2800	OTTA	24OAR	1900.0	1920	20.0	12.5			
	2800	OTTA	3 S	1914.2	1915.5	2.5	10.0	8.0		
12	8400	BERN	20	0830.0	0832.2	6.0	52.0			
	2800	OTTA	24O R	1425.0	1510	45.0	4.8	2.4		
	2800	OTTA	24OAR	1520.0	1550	30.0	11.8	5.9		
	2800	OTTA	3 S	1538.0	1539.2	10.0	61.8	16.0		
	2800	OTTA	21 GRF	1650.0	1716	290.0	26.6	13.3		
	2800	OTTA	4 S/F	1653.0	1657.3	17.0	50.0			
	2800	OTTA	3 S	1718.8	1719.7	2.0	24.0	9.0		
	2800	OTTA	20 GRF	1945.0	1957	30.0	5.2	2.0		
13	8400	BERN	3	0856.5	0921.1	55.0	61.0			
	2800	OTTA	24O R	1430.0	1437	7.0	3.2			
	2800	OTTA	20 GRF	1511.0	1513	15.0	5.4	2.7		
	2800	OTTA	1 S	1530.9	1531	1.0	2.6	1.3		
	2695	PENT	1 S	2039.8	2040.1	1.5	2.6	1.3		
14	8400	BERN	4	0942.6	0944.7	30.0	116.0			
	3200	BERN	1	1050.0	1053.7	10.0	.0			OPR
	8400	BERN	1	1051.2	1053.7	10.0	24.0			
	2800	OTTA	21 GRF	1440.0	1507	70.0	9.6	4.6		
	2800	OTTA	4 S/F	1504.0	1505.2	3.0	24.2	9.0		
	2800	OTTA	24O R	1558.0	1610	12.0	5.4	2.7		
	2800	OTTA	1 S	1740.0	1743	10.0	5.2	2.6		
	2800	OTTA	20 GRF	2000.0	2050	70.0	6.6	4.6		
	2695	PENT	4 S/F	2235.0	2235.3	4.0	19.6	9.0		
15	3200	BERN	1	0826.2	0835.2	123.0	.0			OPR
	3200	BERN	3	1209.3	1210.7	15.0	.0			OPR
	2800	OTTA	4 S/F	1420.3	1421.5	4.7	18.6			
	2800	OTTA	31 ABS	1425.0	1437	35.0	-8.0	-4.0		
	2800	OTTA	22 GRF	1513.0	1520	77.0	3.8			

SOLAR RADIO EMISSION
SELECTED FIXED FREQUENCY EVENTS

DECEMBER 1980

DAY OF MONTH	FREQUENCY	STATION	TYPE	STARTING TIME	TIME OF MAXIMUM	DURATION	FLUX DENSITY 10^{-22} Wm^{-2} Hz^{-1}		INT	REMARKS
				UT	UT	MINUTES	PEAK	MEAN		
15	2800	OTTA	240 R	1635.0	1700	25.0	5.4	1.8		
	2800	OTTA	22 GRF	1800.0	1837	50.0	8.0	2.7		
	2800	OTTA	28 PRE	1915.0	1916.8	5.0	9.2			
	2800	OTTA	46F C	1920.0	1922.9	20.0	1540	42.0		
	2800	OTTA	29 PBI	1940.0	1940	95.0	17.4	5.8		
16	3200	BERN	4	0804.0	0807.5	18.0	.0			OPR
	8400	BERN	4	0806.5	0807.6	5.0	131.0			
	3200	BERN	20	0830.0	0838.3	23.0	.0			OPR
	8400	BERN	3	0831.0	0907.7	60.0	162.0			
	3200	BERN	3	0906.0	0908.0	30.0	.0			OPR
	8400	BERN	45	0937.0	1011.1	90.0	137.0			
	3200	BERN	45	0938.0	1011.1	107.0	.0			OPR
	8400	BERN	46	1136.0	1148.0	63.0	70.0			
	3200	BERN	46	1142.5	1150.6	60.0	.0			OPR
	2800	OTTA	23 GRF	1427.0	1456	40.0	15.2	7.0		
	8400	BERN	4	1433.7	1436.6	22.0D	97.0			
	3200	BERN	4	1435.6	1436.3	2.5	.0			OPR
	2800	OTTA	3 S	1436.0	1436.5	1.8	10.8	5.4		
	2800	OTTA	46F C	1451.9	1453.4	1.5	28.0	13.0		
	2800	OTTA	22 GRF	1525.0	1610	80.0	5.4	2.7		
	2800	OTTA	26O FAL	1722.0	1812	50.0	-9.2	-4.6		
	2800	OTTA	21 GRF	1850.0	1920	40.0	5.4	4.3		
	2800	OTTA	8 S	1922.0	1922	0.3	15.2			
	2800	OTTA	240 R	1934.0	1937	3.0	4.2	2.1		
17	3200	BERN	22	0803.0	0805.1	22.0	.0			OPR
	8400	BERN	3	0803.8	0805.6	17.0	15.0			
	8400	BERN	4	0844.8	0845.7	11.0	408.0			
	3200	BERN	4	0845.0	0845.5	11.0	.0			OPR
	3200	BERN	20	0920.0	0944.5	80.0	.0			OPR
	3200	BERN	3	1132.3	1132.8	.7	.0			OPR
	8400	BERN	3	1132.4	1132.9	1.5	15.0			
	8400	BERN	45	1157.5	1209.3	95.0	245.0			
	3200	BERN	45	1202.0	1209.1	110.0	.0			OPR
	2800	OTTA	26O FAL	1440.0	1500	20.0	-5.2	-2.6		
	2800	OTTA	20 GRF	1510.0	1517	47.0	8.0	5.0		
	2800	OTTA	21 GRF	1725.0	1800	105.0	5.2			
	2800	OTTA	4 S/F	1818.0	1822	12.0	17.8	8.0		
	2695	PENT	20 GRF	2101.0	2108	20.0	15.8	7.0		
18	2800	OTTA	240 R	1420.0	1423	3.0	5.4	2.7		
	2800	OTTA	21 GRF	1600.0	1643	75.0	7.6	3.8		
	2800	OTTA	1 S	1648.7	1649	1.3	2.2	1.1		
	2800	OTTA	20 GRF	1730.0	1740	80.0	4.8	2.4		
	2800	OTTA	21 GRF	1910.0	1913	40.0	3.2	1.6		
	2800	OTTA	8 S	1921.2	1921.4	0.8	218.0	109.0		
	2800	OTTA	29 PBI	1922.0	1922	8.0	24.6	8.2		
19	2800	OTTA	20 GRF	1415.0	1423	45.0	5.4	3.0		
	2800	OTTA	21 GRF	2010.0	2023	35.0	11.4	4.2		
	2695	PENT	1 S	2012.0	2014	3.5	7.8	3.6		
20	3200	BERN	1	1049.3	1049.7	2.0	.0			OPR
	8400	BERN	3	1322.5	1324.3	28.0	281.0			
	3200	BERN	3	1322.6	1324.3	30.0	.0			OPR
	2800	OTTA	21 GRF	1535.0	1639	110.0	8.6	3.0		
	2800	OTTA	1 S	1552.7	1552.8	1.0	2.8	1.4		
	2800	OTTA	8 S	1555.0	1555.2	0.7	9.2	4.6		
	2800	OTTA	2 S/F	2046.0	2051.8	8.0	8.6			
21	2800	OTTA	1 S	2133.0	2133.2	1.0	9.8	4.9		
23	2800	OTTA	1 S	1755.7	1756	1.0	3.2	1.6		
	2695	PENT	1 S	2114.0	2115.5	3.0	2.8	1.6		
24	2800	OTTA	20 GRF	1423.0	1425	47.0	3.8	1.9		
	2800	OTTA	8 S	1541.5	1541.7	0.3	8.2			
25	2800	OTTA	24 R	1805.0	1815	10.0	2.6	1.3		
	2800	OTTA	27A RF	1805.0		165.0	3.6	2.4		
	2800	OTTA	24P R	1815.0		135.0	2.6			
	2800	OTTA	4 S/F	1913.0	1913.5	2.0	11.6	2.9		
	2800	OTTA	26 FAL	2030.0	2050	20.0	-2.6	-1.3		
	2800	OTTA	3 S	2051.7	2052.2	2.0	13.6	5.0		
27	2800	OTTA	240 R	1433.0	1442	9.0	4.0	2.0		
	2800	OTTA	4 S/F	1443.0	1443.6	1.0	16.0	8.0		
	2800	OTTA	20 GRF	1800.0	1810	100.0	8.2	5.0		
28	2800	OTTA	21 GRF	1610.0	1650	135.0	4.6	2.3		
	2800	OTTA	3 S	1710.0	1712.7	5.0	26.0	9.0		
	2800	OTTA	4 S/F	1904.0	1906.5	5.0	65.0	23.0		
	2695	PENT	2 S/F	2144.0	2145	4.0	7.8	3.9		
	2695	PENT	8 S	2229.5	2229.9	0.6	9.6	4.8		

SOLAR RADIO EMISSION
SELECTED FIXED FREQUENCY EVENTS

DECEMBER 1980

DAY OF MONTH	FREQUENCY	STATION	TYPE	STARTING TIME UT	TIME OF MAXIMUM UT	DURATION MINUTES	FLUX DENSITY 10^{-22} Wm^{-2} Hz^{-1} PEAK	FLUX DENSITY MEAN	INT	REMARKS
29	2800	OTTA	20 GRF	1345.0	1350	15.0D	9.4			
	2800	OTTA	21 GRF	1423.0	1457	95.0	3.8	1.9		
	2800	OTTA	40 F	1430.0	1430.2	1.3	16.4			
	2800	OTTA	40 F	1445.5	1449.7	11.0	19.6			
	2800	OTTA	1 S	1618.0	1618.1	1.0	4.8	2.4		
	2800	OTTA	2 S/F	1835.0	1840.5	9.0	3.8	2.2		
	2695	PENT	20 GRF	1950.0	2030	70.0	3.2	1.6		
30	2800	OTTA	2 S/F	1506.0	1506.5	4.0	2.8	1.4		
31	2800	OTTA	20 GRF	1450.0	1525	90.0	3.2	1.6		
	2800	OTTA	20 GRF	1700.0	1728	65.0	2.8	1.6		

Observatories:

BERN = Berne MANI = Manila OTTA = Ottawa ARO PENT = Penticton SGMR = Sagamore Hill

Explanation of Type Code:

1 Simple 1	6 Minor	22 Simple 3F	27 Rise and Fall	32 Absorption	44 Noise Storm in Progress
2 Simple 1F	7 Minor +	23 Simple 3AF	28 Precursor	40 Fluctuation	45 Complex
3 Simple 2	8 Spike	24 Rise	29 Post Burst Increase	41 Group of Bursts	46 Complex F
4 Simple 2F	20 Simple 3	25 Rise A	30 Post Burst Increase A	42 Series of Bursts	47 Great Burst
5 Simple	21 Simple 3A	26 Fall	31 Post Burst Decrease	43 Onset of Noise Storm	48 Major
					49 Major +

SELECTED SOLAR NOISE BURSTS

DECEMBER 1980

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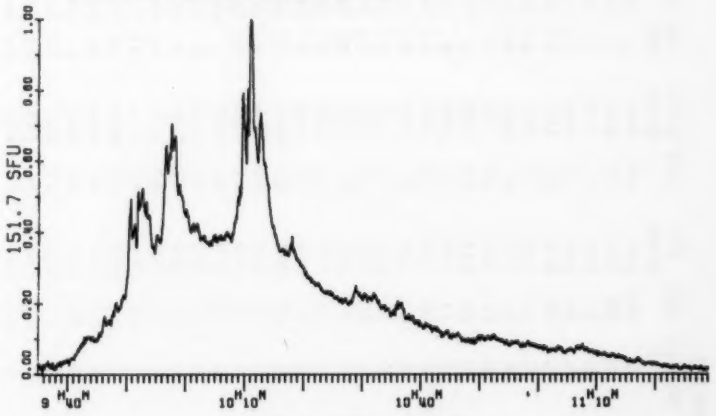
I 5.2, F=5.2 GHZ, BW=100.0 MHZ, T=1.0 SEC



UT ON DEC. 16 1980

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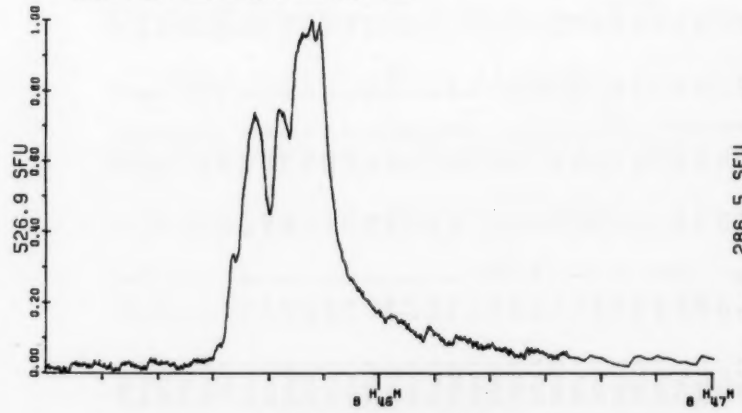

UT ON DEC. 17 1980

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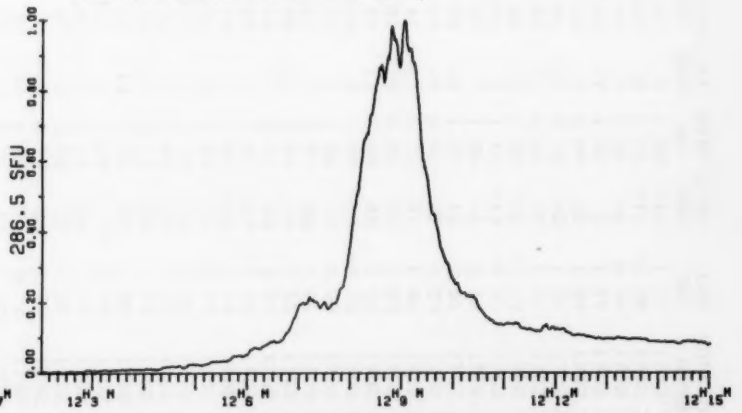


UT ON DEC. 17 1980

SOLAR WIND

Interplanetary Scintillations

DECEMBER 1980

DATE	DOY	UT HR	VMID KM/S	ERR	VPK KM/S	ERR	RATING 1-4	SOURCE	ELONG DEG	LAT DEG	DIST AU	DLON DEG	LAG DAY	ROTATION NUMBER
801201	336	1	494	96	476	105	2	3C446	87	4	1.03	-16	-1.11	1702.34
	336	3	554	37	542	22	2	3C459	102	5	1.10	-14	-0.78	1702.35
	336	5	524	9	545	11	3	3C48	140	7	1.24	-6	0.39	1702.30
	336	10	428	56	442	46	2	3C161	140	-7	1.24	6	1.49	1702.24
	336	15	426	18	438	27	2	3C273	63	0	0.89	27	1.54	1702.24
	336	16	385	12	366	16	3	3C283	46	-17	0.72	42	1.76	1702.22
	336	18	388	8	390	8	4	3C298	43	16	0.68	45	1.87	1702.22
801202	337	1	371	56	360	143	2	3C446	86	4	1.02	-16	-1.15	1702.33
	337	3	407	53	412	23	2	3C459	101	5	1.10	-15	-0.71	1702.34
	337	5	443	32	470	11	3	3C48	139	7	1.24	-6	0.50	1702.31
	337	14	481	42	470	28	2	3C237	99	-2	1.09	16	1.51	1702.30
	337	15	373	8	367	8	3	3C273	64	0	0.90	27	1.53	1702.26
	337	16	316	11	315	11	3	3C283	47	-17	0.73	41	1.46	1702.23
	337	17	396	15	401	37	2	3C295	81	14	1.00	12	0.83	1702.30
	337	18	398	7	396	7	4	3C298	44	15	0.69	45	1.92	1702.26
801203	338	3	388	64	417	60	2	3C459	100	5	1.09	-15	-0.70	1702.36
	338	5	504	13	465	9	2	3C48	139	7	1.24	-7	0.32	1702.37
	338	15	398	72	382	59	2	3C273	65	0	0.91	26	1.46	1702.31
	338	16	439	14	416	13	2	3C283	48	-16	0.74	39	1.82	1702.31
	338	18	431	11	470	10	3	3C298	45	14	0.71	43	1.97	1702.31
801204	339	1	340	12	272	126	2	3C446	84	4	1.01	-17	-1.23	1702.39
	339	3	413	30	337	55	2	3C459	99	5	1.09	-15	-0.79	1702.41
	339	4	342	20	436	49	2	3C48	138	6	1.24	-6	0.77	1702.33
	339	14	473	26	432	100	2	3C237	101	-3	1.10	16	1.52	1702.37
	339	15	419	14	392	17	3	3C273	66	0	0.91	25	1.47	1702.35
	339	16	428	13	404	12	3	3C283	49	-16	0.75	38	1.79	1702.34
	339	18	406	14	402	14	4	3C298	46	14	0.72	43	1.93	1702.34
801205	340	4	345	25	732	179	2	3C48	137	6	1.24	-7	0.74	1702.37
	340	14	362	11	386	11	2	3C237	103	-3	1.11	16	1.75	1702.35
	340	15	441	15	361	18	2	3C273	67	0	0.92	23	1.39	1702.40
	340	16	414	15	443	33	3	3C283	50	-15	0.77	38	1.79	1702.38
	340	17	378	31	369	148	2	3C295	82	14	1.00	10	0.76	1702.40
	340	18	329	7	316	12	3	3C298	47	13	0.73	42	1.62	1702.35
801206	341	1	292	65	296	86	2	3C446	82	4	1.00	-16	-1.22	1702.43
	341	2	422	21	366	46	2	3C459	97	4	1.08	-15	-0.85	1702.49
	341	4	301	49	360	21	2	3C48	136	6	1.23	-7	0.86	1702.37
	341	13	347	13	299	48	2	3C222	110	-4	1.14	14	1.76	1702.38
	341	13	404	43	324	73	2	3C237	103	-3	1.11	15	1.61	1702.41
	341	15	396	15	414	12	3	3C273	68	0	0.93	22	1.29	1702.42
	341	16	503	14	496	22	3	3C283	51	-15	0.78	37	1.91	1702.44
	341	18	344	7	347	7	4	3C298	48	13	0.74	41	1.71	1702.39
801207	342	0	200	50	336	70	2	3C409	67	19	0.92	-15	-1.88	1702.38
	342	1	446	21	514	88	2	3C446	81	3	1.00	-16	-1.29	1702.55
	342	3	394	44	387	25	2	3C459	96	4	1.07	-15	-0.86	1702.52
	342	4	369	50	411	27	2	3C48	135	6	1.23	-7	0.56	1702.46
	342	13	298	13	290	23	2	3C222	111	-4	1.14	13	1.86	1702.38
	342	13	322	32	298	26	2	3C237	105	-3	1.12	15	1.80	1702.40
	342	15	415	33	372	32	2	3C273	69	-1	0.93	21	1.27	1702.47
	342	16	389	17	421	18	2	3C283	52	-15	0.79	36	1.66	1702.45
	342	18	333	9	332	22	4	3C298	49	12	0.75	40	1.61	1702.42
801208	343	2	411	9	409	24	2	3C459	95	4	1.07	-14	-0.81	1702.56
	343	4	457	10	435	7	2	3C48	134	6	1.23	-6	0.40	1702.54
	343	15	421	30	425	23	2	3C273	70	-1	0.94	22	1.34	1702.51
	343	16	380	22	371	21	3	3C283	53	-14	0.80	35	1.62	1702.48
	343	18	334	10	327	29	4	3C298	50	12	0.77	39	1.63	1702.46
801209	344	3	335	64	299	69	2	3C459	94	4	1.06	-15	-0.86	1702.56
	344	4	385	9	396	13	3	3C48	133	6	1.22	-8	0.47	1702.54
	344	14	432	60	420	79	2	3C273	71	-1	0.95	20	1.22	1702.55
	344	16	445	13	427	15	3	3C283	54	-14	0.81	34	1.73	1702.54
	344	18	335	8	350	13	4	3C298	51	11	0.78	38	1.57	1702.49
801210	345	2	269	8	341	30	2	3C459	93	4	1.06	-15	-0.78	1702.54
	345	4	425	48	441	11	3	3C48	133	6	1.22	-7	0.39	1702.60

SOLAR WIND

Interplanetary Scintillations

DECEMBER 1980

DATE	DOY	UT HR	VMID KM/S	ERR	VPK KM/S	ERR	RATING 1-4	SOURCE	ELONG DEG	LAT DEG	DIST AU	DLON DEG	LAG DAY	ROTATION NUMBER
	345	14	486	60	489	61	2	3C273	72	-1	0.95	18	1.17	1702.60
	345	17	413	57	409	46	3	3C298	52	10	0.79	38	1.86	1702.56
B01212	347	4	599	51	617	27	2	3C48	131	6	1.22	-8	-0.00	1702.73
	347	10	492	22	466	25	2	3C196	138	5	1.24	9	1.52	1702.66
	347	11	367	9	382	15	2	3C216	129	4	1.21	10	1.82	1702.60
	347	14	412	21	485	25	2	3C273	74	-1	0.96	18	1.17	1702.65
	347	15	479	28	486	42	4	3C283	57	-13	0.84	31	1.72	1702.66
	347	16	267	58	252	28	2	3C295	86	13	1.02	11	0.99	1702.57
	347	18	436	20	446	9	4	3C298	54	9	0.81	36	1.87	1702.64
B01213	348	0	364	43	464	20	2	3C409	63	22	0.89	-17	-1.85	1702.75
	348	4	474	42	455	23	3	3C48	130	6	1.21	-9	0.09	1702.73
	348	10	820	20	791	46	2	3C196	138	5	1.24	8	1.14	1702.77
	348	14	452	64	503	111	2	3C273	75	-1	0.97	18	1.19	1702.70
	348	15	460	16	398	14	3	3C283	58	-13	0.85	31	1.71	1702.69
	348	17	447	16	428	34	3	3C298	54	9	0.81	36	1.90	1702.68
B01214	349	2	483	61	469	35	2	3C459	89	4	1.04	-15	-1.05	1702.81
	349	4	451	17	532	16	3	3C48	129	6	1.21	-8	0.19	1702.76
	349	14	347	23	330	12	2	3C273	76	-1	0.97	18	1.15	1702.70
	349	15	396	41	372	19	3	3C283	59	-12	0.86	30	1.59	1702.71
	349	18	439	18	421	13	4	3C298	55	8	0.82	34	1.75	1702.72
B01215	350	0	375	83	438	42	2	3C446	73	3	0.96	-16	-1.48	1702.82
	350	2	422	14	416	23	2	3C459	88	3	1.03	-16	-1.08	1702.83
	350	4	420	21	419	36	2	3C48	128	5	1.21	-8	0.27	1702.78
	350	14	389	10	352	9	4	3C273	77	-1	0.98	18	1.20	1702.75
	350	15	334	42	369	38	3	3C283	60	-12	0.87	29	1.40	1702.72
	350	17	564	47	476	24	2	3C298	56	8	0.83	33	1.93	1702.78
B01216	351	2	304	45	298	108	2	3C459	87	3	1.03	-16	-1.04	1702.80
	351	3	338	37	328	13	2	3C48	127	5	1.20	-9	0.40	1702.77
	351	14	426	17	422	109	2	3C273	78	-2	0.98	19	1.31	1702.80
	351	15	684	110	588	130	2	3C283	61	-12	0.87	28	1.75	1702.85
	351	17	347	54	340	54	2	3C298	57	8	0.84	32	1.53	1702.76
B01217	352	2	342	11	288	35	2	3C459	86	3	1.02	-16	-1.12	1702.87
	352	4	419	19	443	11	3	3C48	126	5	1.20	-10	0.11	1702.86
	352	14	369	57	346	15	2	3C273	79	-2	0.99	18	1.25	1702.81
	352	15	409	43	420	74	2	3C283	62	-12	0.88	26	1.44	1702.82
B01218	353	4	261	10	350	14	2	3C48	125	5	1.20	-9	0.67	1702.78
	353	17	487	39	592	99	2	3C298	59	7	0.86	31	1.79	1702.88
B01219	354	0	327	31	292	18	2	3C446	69	3	0.93	-21	-1.98	1702.96
	354	2	413	12	409	23	3	3C459	84	3	1.01	-17	-1.25	1702.98
	354	13	681	14	629	13	2	3C237	117	-4	1.17	13	1.43	1702.96
	354	14	550	10	554	12	4	3C273	81	-2	1.00	18	1.31	1702.95
	354	15	461	12	447	11	3	3C283	64	-11	0.90	26	1.49	1702.92
	354	16	538	136	557	123	2	3C295	90	12	1.04	11	0.94	1702.96
	354	17	438	24	452	23	4	3C298	60	6	0.87	30	1.66	1702.91
B01220	355	0	335	14	352	32	2	3C446	68	3	0.93	-20	-1.99	1703.00
	355	2	514	11	517	11	3	3C459	83	3	1.01	-16	-1.20	1703.05
	355	3	447	8	469	17	4	3C48	124	5	1.19	-10	0.00	1702.98
	355	14	456	9	463	9	4	3C273	82	-2	1.00	17	1.30	1702.96
	355	15	425	11	427	11	2	3C283	65	-11	0.91	24	1.38	1702.94
	355	17	444	61	410	10	3	3C298	61	6	0.87	29	1.64	1702.95
B01221	356	0	499	34	491	33	2	3C446	67	3	0.92	-22	-1.99	1703.11
	356	2	432	65	557	65	2	3C459	82	3	1.00	-16	-1.20	1703.06
	356	3	415	12	498	9	4	3C48	123	5	1.19	-10	0.06	1703.01
B01222	357	2	473	104	474	64	2	3C459	81	3	1.00	-16	-1.28	1703.11
	357	3	275	25	366	16	2	3C48	122	5	1.19	-9	0.51	1702.95
	357	14	359	12	423	21	2	3C273	84	-2	1.01	18	1.41	1702.99
	357	15	350	27	302	10	3	3C283	67	-10	0.92	22	1.20	1702.99
	357	17	433	10	392	11	4	3C298	63	5	0.89	26	1.46	1703.02
B01223	358	1	344	20	278	39	2	3C459	80	3	0.99	-15	-1.24	1703.09
B01224	359	3	463	14	485	47	2	3C48	120	5	1.18	-10	-0.08	1703.14
	359	15	356	17	349	10	3	3C283	69	-10	0.93	20	1.14	1703.07
	359	17	380	61	341	10	2	3C298	65	4	0.91	25	1.39	1703.07
B01225	360	3	428	7	419	12	3	3C48	119	5	1.18	-11	-0.10	1703.16

SOLAR WIND

Interplanetary Scintillations

DECEMBER 1980

DATE	DOY	UT HR	VMID KM/S	ERR	VPK KM/S	ERR	RATING 1-4	SOURCE	ELONG DEG	LAT DEG	DIST AU	DLON DEG	LAG DAY	ROTATION NUMBER
	360	11	472	*	452	*	2	3C222	129	-6	1.21	10	1.59	1703.13
	360	14	330	23	351	13	2	3C273	87	-3	1.03	17	1.41	1703.08
	360	15	340	*	310	*	2	3C295	93	11	1.06	11	1.12	1703.10
	360	17	361	40	312	7	3	3C298	66	4	0.91	24	1.36	1703.10
801227	362	1	311	26	293	8	3	3C459	76	2	0.97	-16	-1.44	1703.22
	362	3	408	13	440	14	2	3C48	117	4	1.17	-11	-0.09	1703.23
801228	363	1	388	10	367	25	3	3C459	75	2	0.97	-17	-1.46	1703.30
	363	2	356	10	356	10	3	3C48	116	4	1.16	-11	0.00	1703.24
	363	13	356	43	365	20	2	3C273	90	-3	1.04	17	1.52	1703.20
	363	14	362	13	335	9	2	3C283	73	-9	0.96	18	1.07	1703.22
	363	16	317	10	309	10	4	3C298	69	3	0.93	21	1.18	1703.19
801229	364	1	319	12	313	12	2	3C459	74	2	0.96	-17	-1.51	1703.30
	364	3	419	7	435	7	4	3C48	115	4	1.16	-10	-0.12	1703.31
801230	365	3	409	11	388	8	4	3C48	114	4	1.16	-12	-0.23	1703.34
	365	13	344	18	343	20	2	3C273	92	-3	1.05	16	1.49	1703.26
801231	366	13	305	57	294	51	2	3C273	93	-3	1.06	17	1.63	1703.27
	366	14	486	43	516	143	2	3C283	76	-9	0.97	16	1.10	1703.37
	366	16	318	29	393	9	2	3C298	71	1	0.95	18	1.04	1703.31
	366	23	313	55	315	67	2	3C446	56	4	0.83	-34	-3.60	1703.48

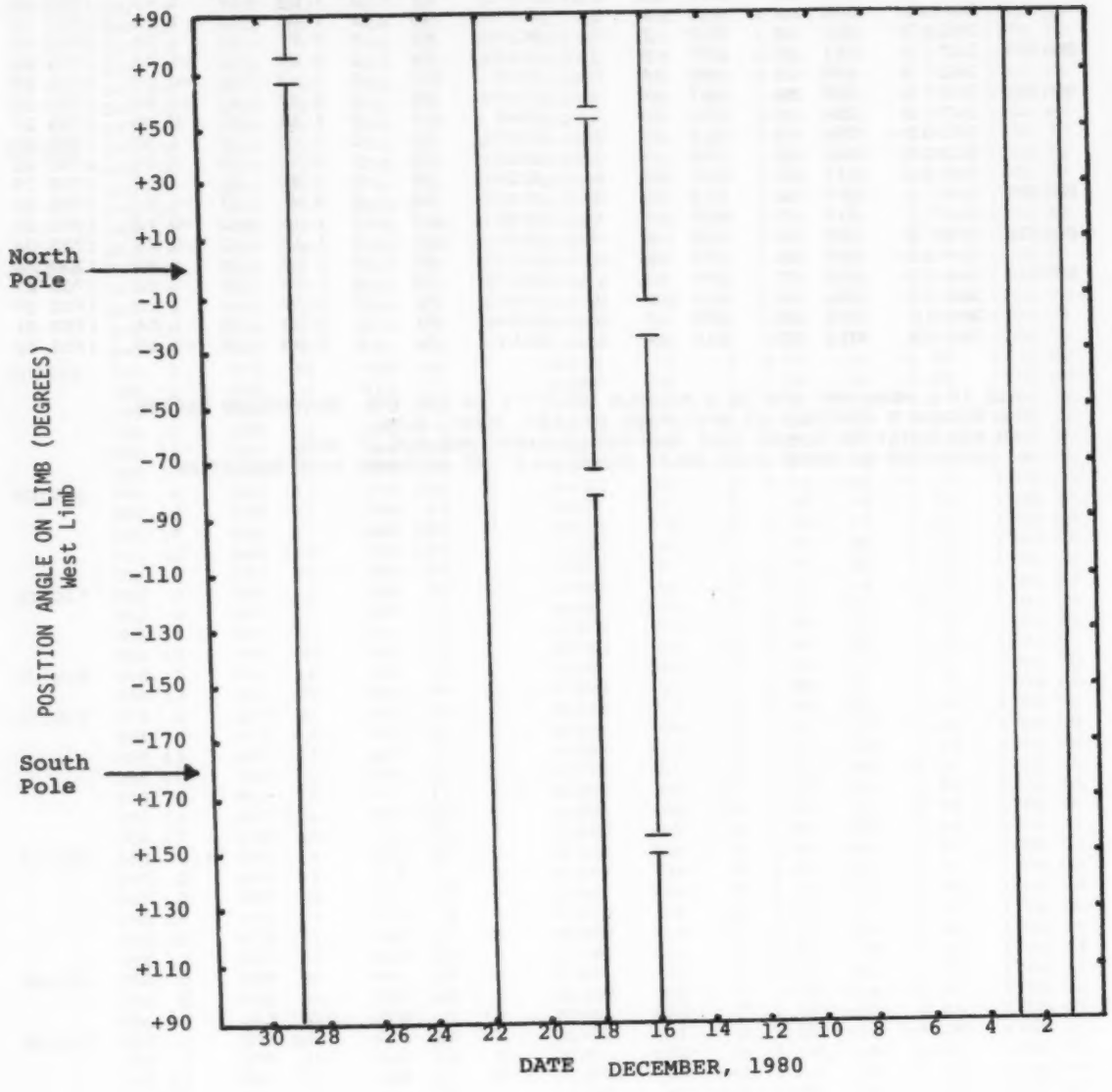
VMID IS A MEAN AND VPK IS A MAXIMUM VELOCITY IN THE IPS SCATTERING REGION.
THE REGION'S CENTROID IS SPECIFIED BY LAT, DIST, DLON.
LAG AND ROTATION NUMBER GIVE MAPPING TO EARTH AND SUN AT VMID.
* INDICATES NO ERROR AVAILABLE, SINCE ONLY TWO ANTENNAS WERE OPERATING.

CORONAL HOLES

Helium D3 Chromosphere at Solar Limb

DECEMBER 1980

Big Bear Solar Observatory



PIONEER XII

DECEMBER 1980

DATE DEC '80	TIME (UT)	ESV (°)	U_{H+} (Km/sec)	N_{H+} (H^+/CC)	T_{H+} ($x10^6$°K)
1	2222		351.	19.8	0.048
2	1930		317.	64.7	.038
3	1921		317.	80.1	.058
4	1806		372.	40.0	.258
5	1257		519.	15.7	.244
6	1506		562.	13.1	.231
7	1940		495.	6.9	.082
8	1358		378.	12.5	.124
9	1260		366.	23.5	.120
10	1904		479.	14.1	.144
11	1460		402.	27.6	.082
12	0858		454.	15.7	.280
13	0223	112.8	627.	3.8	.257
14	2300		426.	12.4	.035
15	0510		415.	18.8	.031
16	1455		424.	14.6	.154
17	1201		485.	9.8	.215
18	0209		445.	15.4	.112
19	2024		390.	12.4	.053
20	2322		362.	15.8	.045
21	1529		332.	29.0	.065
22	2349	118.8	485.	11.0	.161
23	1322		492.	14.6	.162
24	1859		419.	12.5	.130
25	1641		419.	16.9	.129
26	1201		434.	18.1	.192
27	1258		345.	16.3	.062
28	1308		308.	24.7	.043
29	1555		305.	97.5	.018
30	1517		296.	162.7	.024
31	2029		366.	27.1	.092

INFERRED IP MAGNETIC FIELD

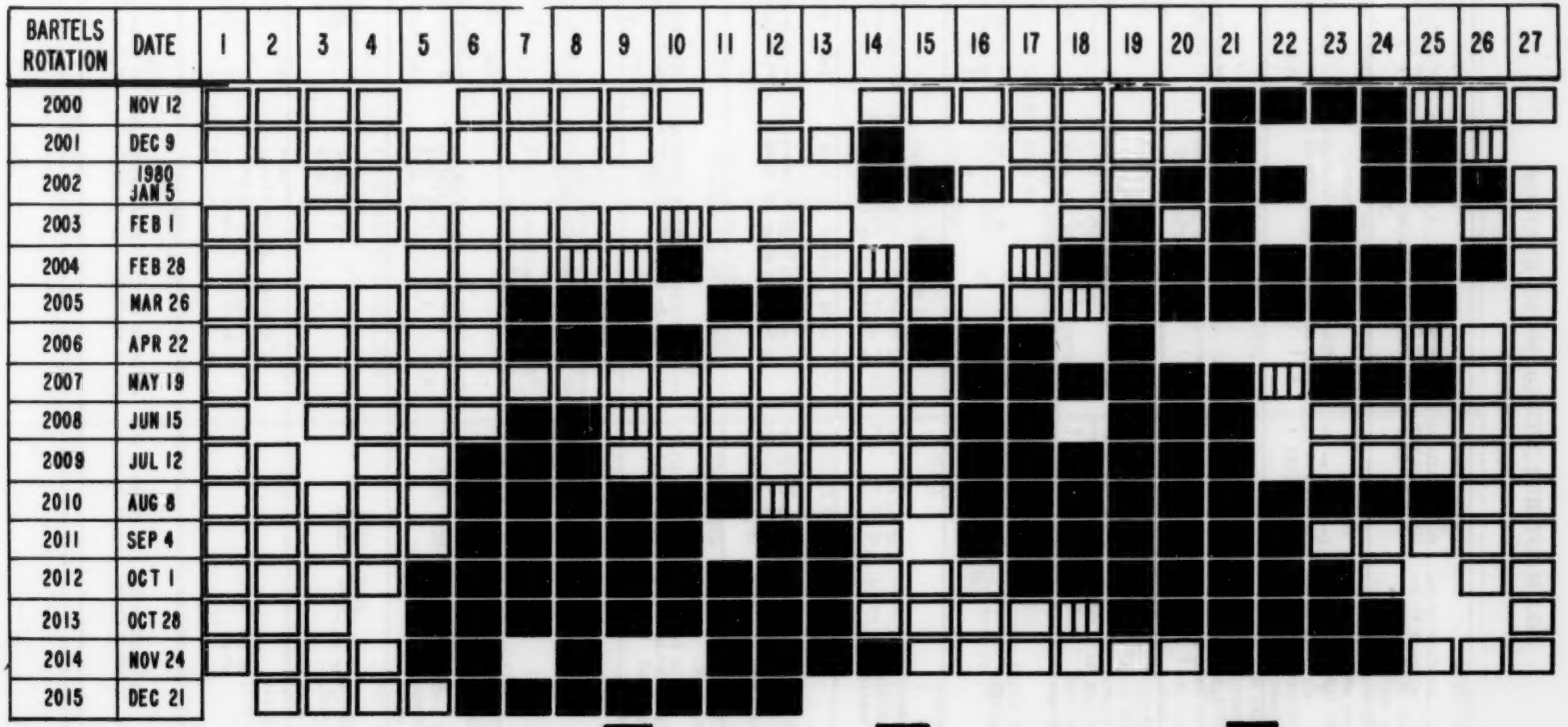
BARTELS ROTATION	DATE	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27
1997	AUG 28			-	A*						AT							-		-		T*	-	AT	TA -		TA AT	
1998	SEP 24						A*		AT	-		TA		A*	*			TA		-			TA		TA	TA -		*
1999	OCT 21									T*		TA	-		-					AT	AT *		AT					
2000	NOV 17	-	TA -			AT					*				AT				AT -	TA	-		TA		-	-		
2001	DEC 14				-				TA		TA	-	-	AT -				AT		AT *		T* AT	T*				-
2002	1980 JAN 10						AT	-		-			-	TA AT		T*		TA	AT						TA	A*	
2003	FEB 6		TA			-				A*							TA							*	TA	TA		
2004	MAR 4		AT		TA		AT	-	-	TA		-			T*		AT AT			TA			AT	AT TA		TA -	-
2005	MAR 31		TA	AT AT	AT		AT	TA	T*			AT				TA TA					TA		TA	AT AT	AT AT	TA TA		
2006	APR 27		AT			AT -						TA	AT		TA			TA AT	AT						TA	AT	*	TA	
2007	MAY 24			AT	AT			*	* -	-	-	- -	TA		AT					* TA			-	TA		TA	-	TA	
2008	JUN 20		-				AT		-	-					-	-							TA		TA		TA	
2009	JUL 17		-	AT		-						-			TA TA		-	AT AT			-		-	-	-	- A*	-	-
2010	AUG 13		AT					-	AT -							-		- AT						TA		-	A*	
2011	SEP 9							TA	AT						TA	TA									TA			
2012	OCT 6							*		TA	TA		AT A*		A*							TA			TA			
2013	NOV 2	AT					TA	TA				AT A*									-	TA -	AT		TA			
2014	NOV 29				-					-	-				TA		TA TA		AT			AT				TA		
2015	DEC 26																											

■ = definitely towards the sun □ = definitely away from the sun

T = towards the sun A = away from the sun * = effect doubtful or not discernible - = missing data

The table shows daily inferences of the polarity of the interplanetary magnetic field. The first half of the day is based principally on magnetograms produced by the magnetometer at the Vostok Antarctic Station of the USSR. The magnetometer of the U.S. Air Weather Service now operated at Thule by the Danish Meteorological Institute is used for the second half of the day.

STANFORD MEAN SOLAR MAGNETIC FIELD



POLARITY OF THE MEAN SOLAR MAGNETIC FIELD: □ = FIELD >2μT, ▥ = -2μT ≤FIELD ≤2μT, ■ = FIELD <-2μT

No box visible indicates no data available for that day.

NOTE: Data are taken daily at 2000 UT. Dates given are not Bartels Rotation dates. These earlier dates correspond to the occurrence of phenomena on the Sun that affect the Earth during the given Bartels Rotation.

STANFORD MEAN SOLAR MAGNETIC FIELD (MICROTESLA)

1980

DAY	JAN.	FEB.	MARCH	APRIL	MAY	JUNE	JULY	AUG.	SEPT.	OCT.	NOV.	DEC.
01	-37	94	.	-10	-7	37	-51	-5	-19	44	-41	-82
02	-28	96	.	-26	9	13	.	.	5	59	-94	.
03	1	87	50	-21	26	-16	-25	8	8	53	-120	.
04	.	72	53	.	55	-45	-23	7	29	26	-123	-100
05	.	72	12	-44	21	-57	-19	10	42	-4	-111	-97
06	.	57	-1	-17	-13	-42	.	24	42	-36	-84	-67
07	54	49	1	0	-34	-25	8	53	23	-62	-99	-16
08	59	31	-8	4	-42	-11	11	53	9	-73	-107	41
09	.	10	.	7	.	-1	13	44	-27	-72	-61	71
10	.	0	9	7	-17	-6	23	37	-68	-39	28	77
11	.	10	21	5	.	-18	44	27	-77	-41	27	57
12	.	11	1	2	.	-4	42	8	-84	-45	38	28
13	.	3	-7	-15	.	12	34	-37	-62	-10	26	3
14	.	.	.	-18	5	56	.	-63	.	10	-1	-52
15	.	.	-2	-12	5	54	57	-65	-39	38	-21	-93
16	.	.	-10	-14	-1	.	26	-56	-16	20	-50	-86
17	.	.	-9	-8	16	63	-42	-44	7	-15	-68	-51
18	-17	5	-8	-10	50	71	-69	-24	.	-8	-81	26
19	-8	-13	-18	-5	73	55	-43	1	-18	-2	-63	37
20	33	3	-42	.	78	15	5	23	-38	-16	-24	39
21	32	-7	-41	30	92	-40	32	24	-31	-14	.	.
22	10	.	-39	95	120	-43	47	11	-15	-17	.	51
23	3	-32	-24	113	122	-1	53	-11	-7	-8	97	41
24	-12	.	-20	113	46	33	57	-31	-22	31	80	28
25	-25	.	13	100	14	49	53	-38	-21	.	70	7
26	-31	6	43	56	25	37	27	-27	8	54	31	-13
27	.	43	53	8	64	46	-8	-27	18	52	28	-20
28	-34	58	64	-27	57	54	-33	-18	18	48	-3	-42
29	-26	57	84	-28	62	6	-42	-14	18	44	-26	-65
30	-13		75	-16	49	-22	-29	-18	25	57	.	-88
31	29		25		49		-6	-10		.		-95

DOT SYMBOL ENTRY INDICATES NO DATA AVAILABLE FOR THE DAY.

BOUNDER GEOMAGNETIC SUBSTORM LOG

DECEMBER 1980

DATE	ONSET TIME	DIR	COMMENTS
12/01			Field unsettled through 1600 UT.
	0250	East	Boulder in partial ring current system.
	0905		Weak SS vicinity College.
	1135		SS vicinity College.
	1220	West	
12/02			Field slightly unsettled.
12/03	0710	West	
	0900		Polar Cap SS; Cape Parry to Sachs Harbour.
	1055	West	
	1255		Localized SS vicinity College.
	1635		Slow onset.
12/04	0335		Weak SS. Boulder in partial ring current sector
	0725	≈ Center	Weak SS
12/05			Quiet day
12/06			Quiet day
12/07	1100		Weak SS. Balance of day quiet.
12/08			Field slightly unsettled.
12/09	0630	West	Weak SS, several minor injections with recovery near 0830 UT.
	1600		Weak SS, slow onset.
12/10			Field unsettled with no distinctive SS activity.
12/11	1008	SSC	Field active balance of day.
	1310	West	
	1615		
	1940		Sharp negative impulse H-component all mid/low latitude stations.
12/12			Field unsettled 0700-1400 UT, quiet balance of day.
	1045	West	
12/13			Field intermittently unsettled.
	0740	West	Weak SS
12/14			Field unsettled 1000-2000 UT.
	1020		Weak SS
	1105		Weak SS
12/15	0580	East	Weak SS
	1125		Localized SS, College to Arctic Village.
	1615		Localized SS, College to Inuvik.
12/16			Field active 0830-1800 UT.
	1215	West	
	1505		Several injections with recovery near 1800 UT.
12/17			Quiet day
12/18	0730		Slow onset, several injections with recovery near 1040 UT.
	1550		Slow onset with recovery near 1900 UT.
12/19	0456	SSC	Magstorm follows with recovery near 2100 UT. The onset of a strong ring current began at Boulder at 1300 UT with a maximum deflection from the quiet day curve of approx. 210 gammas near 1800 UT.
	0725	East	Moderate SS
	1325	West	Very strong SS with recovery near 1700 UT.
12/20			Field intermittently unsettled with no distinctive SS activity.
12/21			Field intermittently unsettled.
	0925	West	
12/22			Field unsettled 0730-1300 UT. Minor injection processes with varied response. No distinctive network SS activity.
12/23	0900	West	
12/24			Quiet day.
12/25	1130	West	Recovery near 1400 UT.
12/26	1020	West	Weak SS
	1320	West	Weak SS
12/27	0625	≈ Center	Weak SS
	1050	West	Moderate SS, several injections with recovery near 1500 UT.
12/28			Field slightly unsettled.
12/29			Field unsettled 0600-1600 UT.
	1135	West	Weak SS
	1310	West	Weak SS
12/30	0740		Sharp positive impulse H-component all mid/low latitude stations. Coincident SS at Lynn Lake.
	0905	East	
	1030	West	Several injections with recovery near 1300 UT.
12/31			Field intermittently unsettled with no distinctive SS activity.

SGD 437 Part 1 (Prompt)

NOVEMBER 1980 DATA

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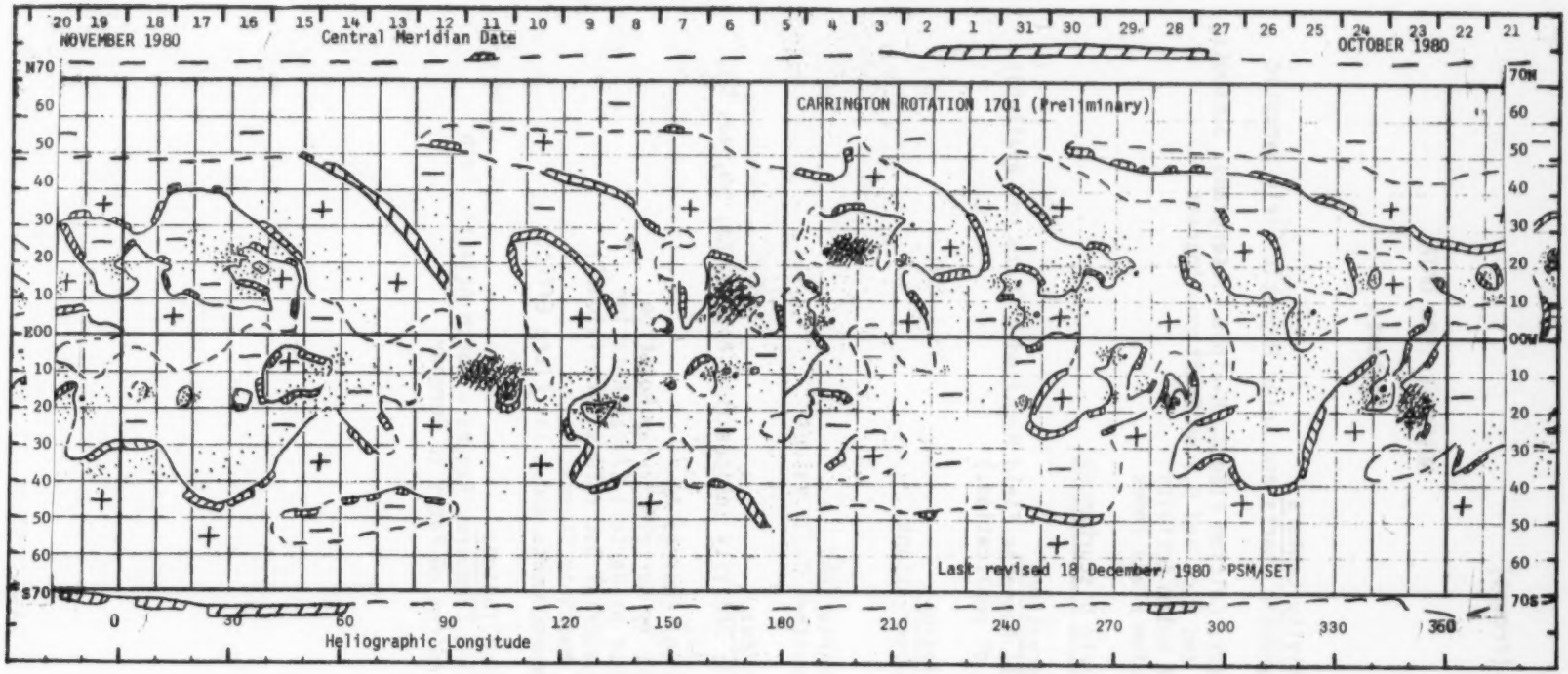
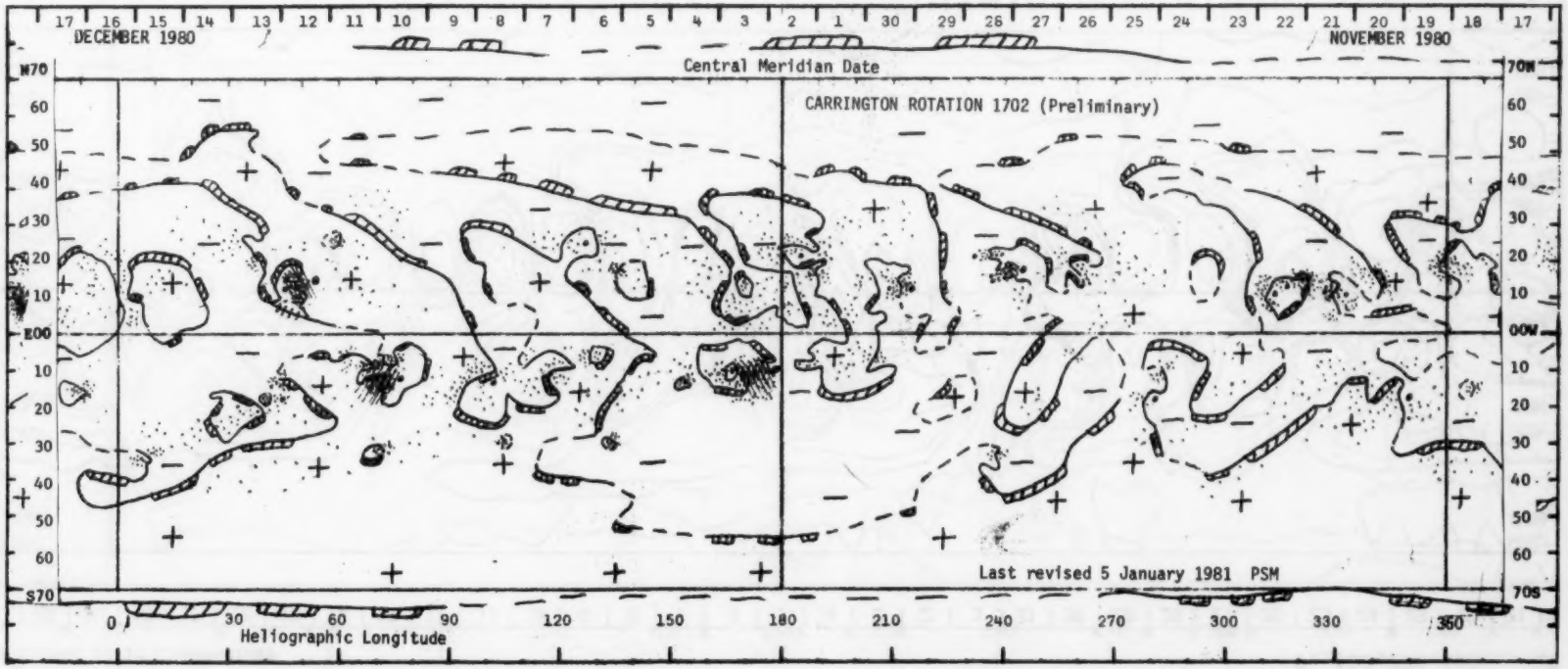
Hα SYNOPTIC CHART

CARRINGTON ROTATION 1701 (PRELIMINARY)



Hα SYNOPTIC CHART

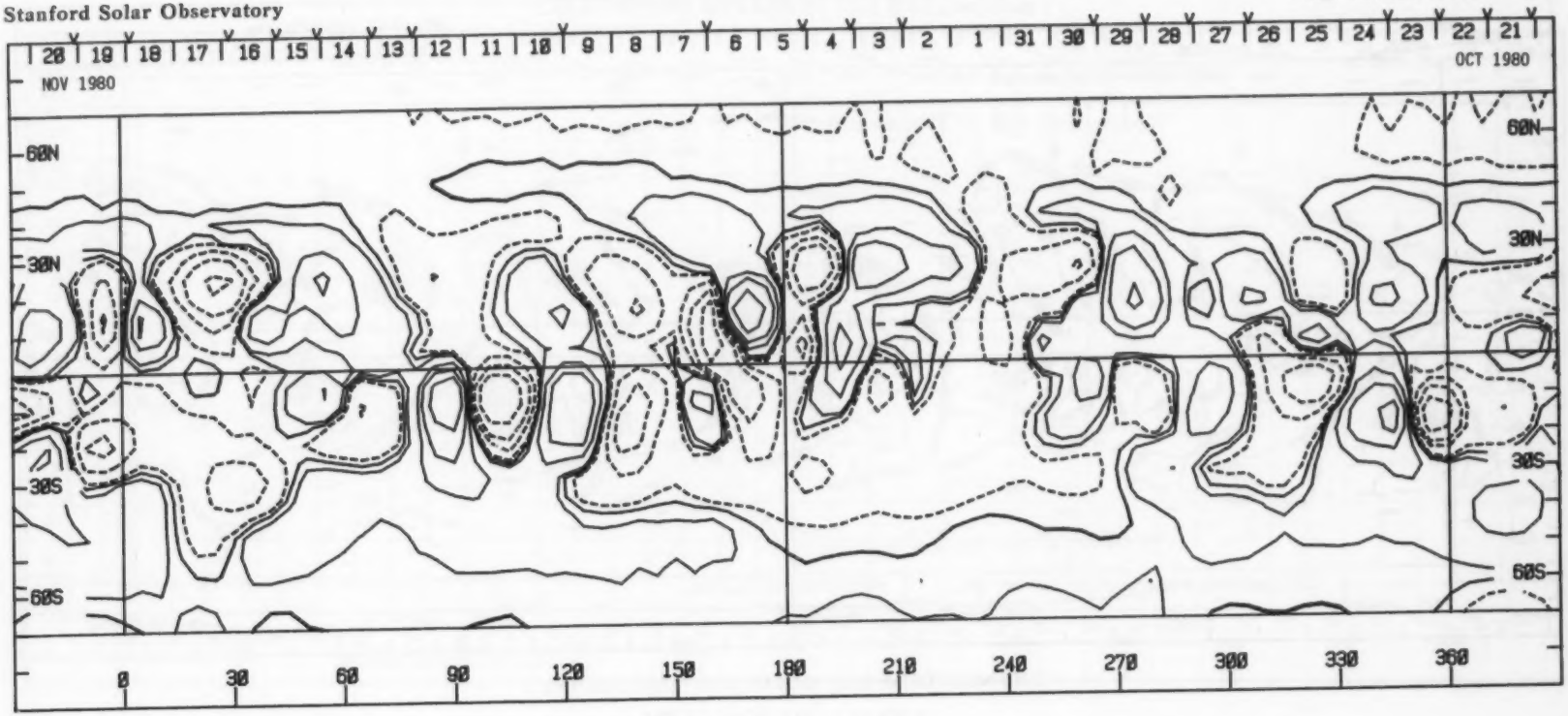
CARRINGTON ROTATION 1702 (PRELIMINARY)



SOLAR MAGNETIC FIELD SYNOPTIC CHART
CARRINGTON ROTATION 1701

Stanford Solar Observatory

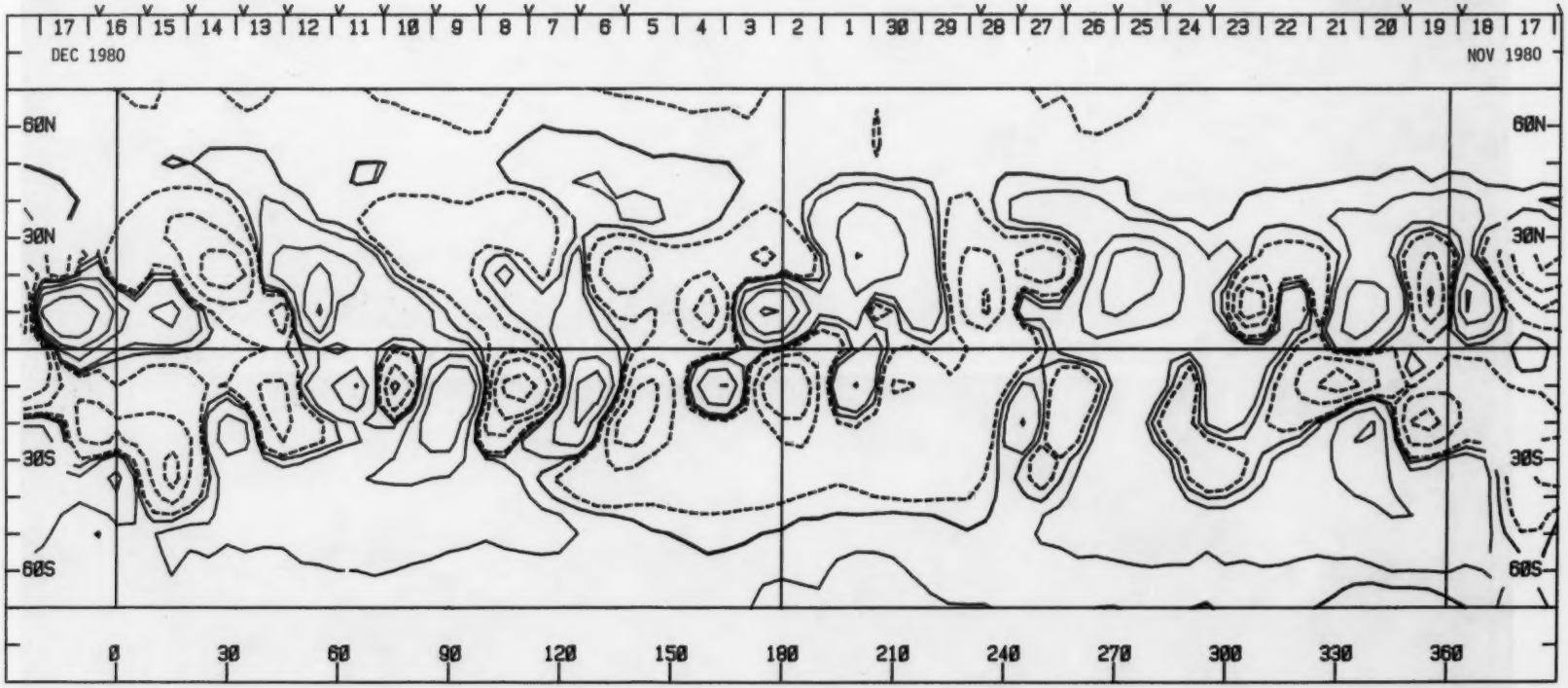
0,±100,200,500... μT



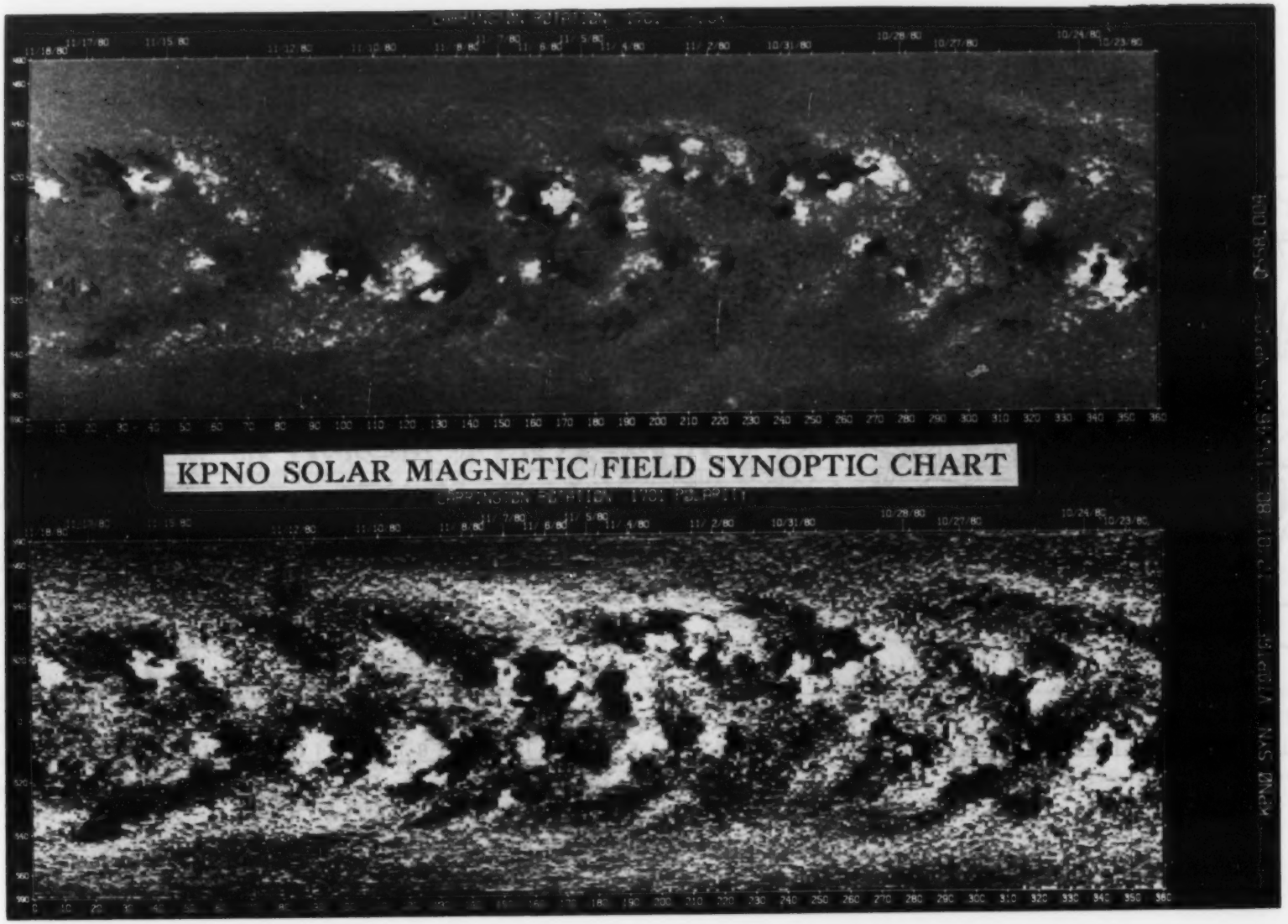
SOLAR MAGNETIC FIELD SYNOPTIC CHART
CARRINGTON ROTATION 1702

Stanford Solar Observatory

0,±100,200,500... μT



55
Nov 80


KPNO SOLAR MAGNETIC FIELD SYNOPTIC CHART

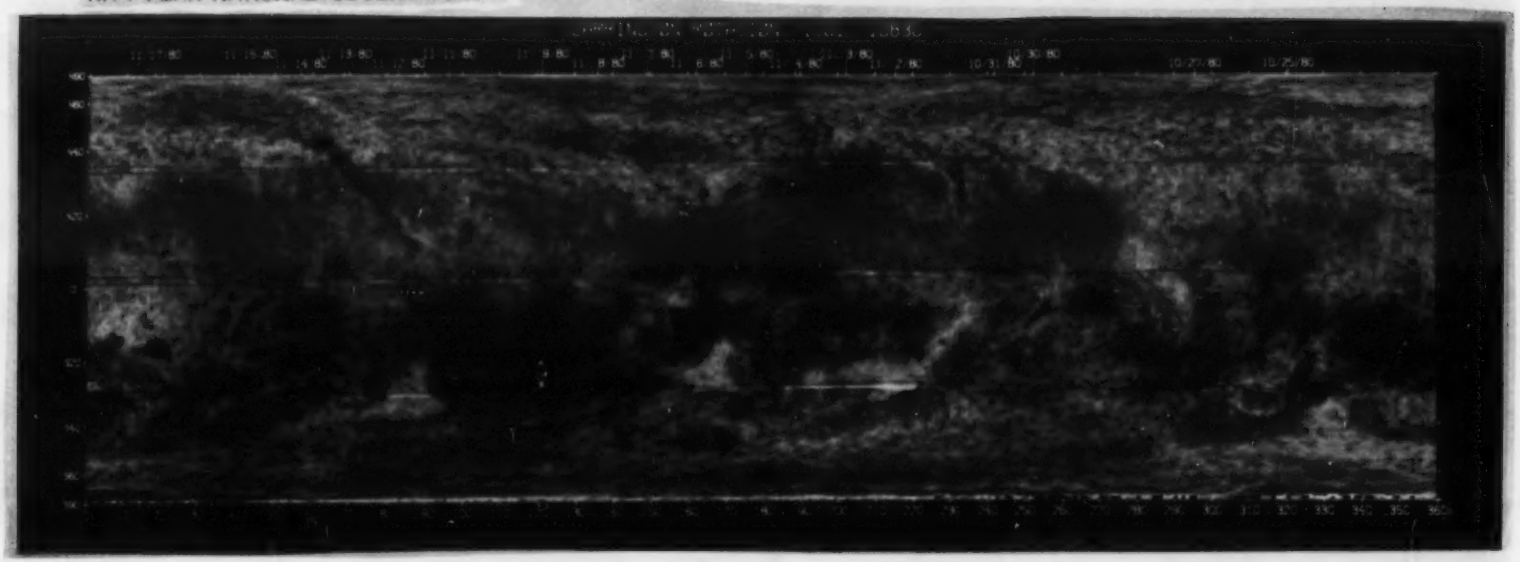
KPNO SOLAR MAGNETIC FIELD SYNOPTIC CHART

58
Nov 80

HELIUM 10830Å SYNOPTIC MAPS

CARRINGTON ROTATION 1701

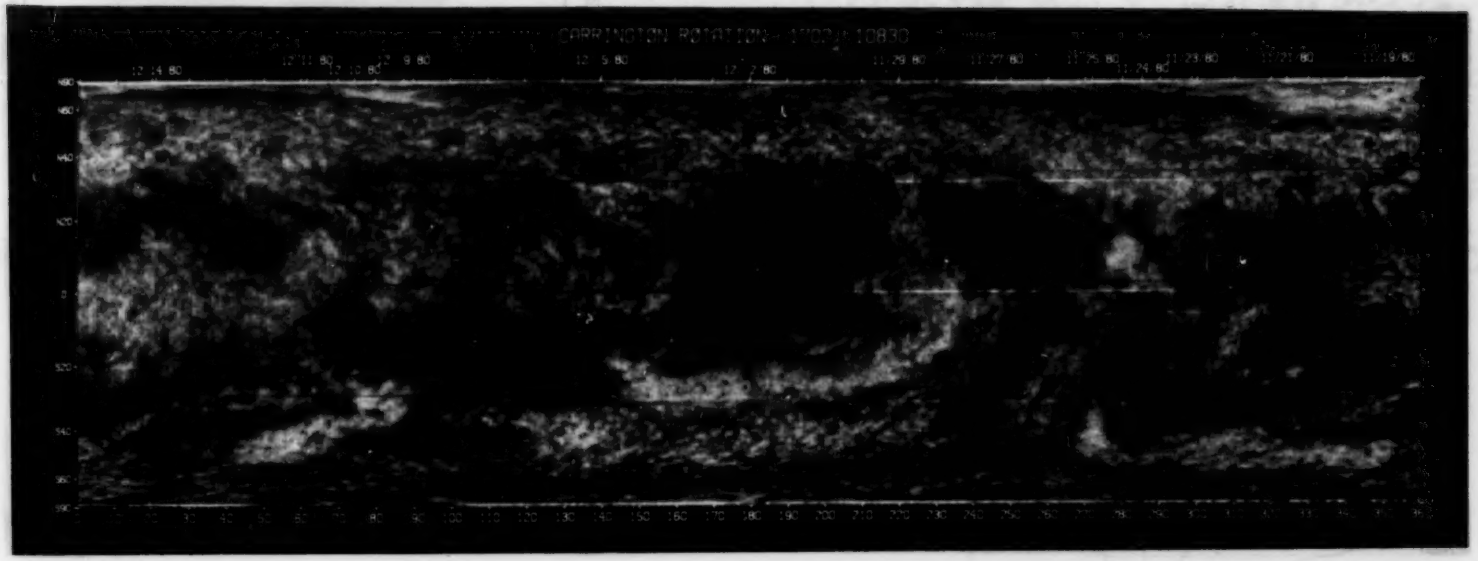
KITT PEAK NATIONAL OBSERVATORY



HELIUM 10830Å SYNOPTIC MAPS

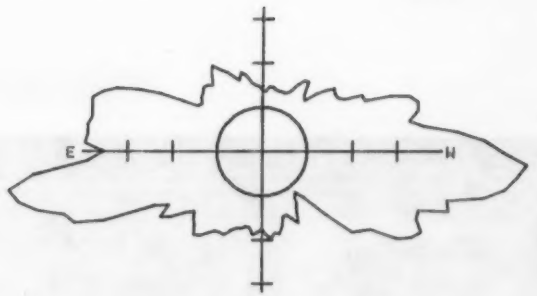
CARRINGTON ROTATION 1702

KITT PEAK NATIONAL OBSERVATORY



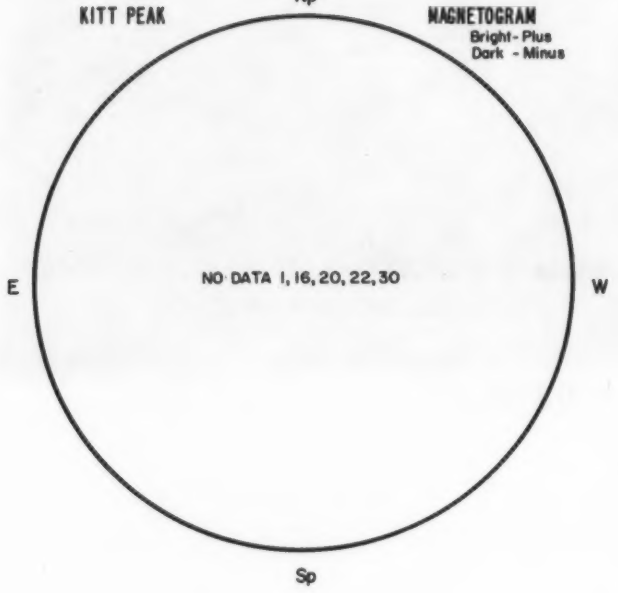
NOVEMBER 1, 1980 (P = 24.51, B_o = 4.33, L_o = 238.34)

SACRAMENTO PEAK Np CORONA (1.15 $R_\odot$)
5303 Å

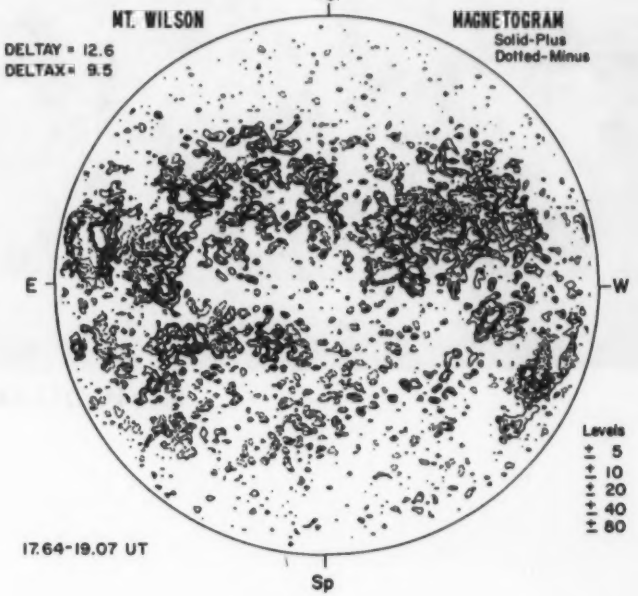


1755 UT

KITT PEAK Np MAGNETOGRAM
Bright - Plus
Dark - Minus



Sp
Np
MT. WILSON MAGNETOGRAM
Solid-Plus
Dotted-Minus
DELTAY = 12.6
DELTAX = 9.5

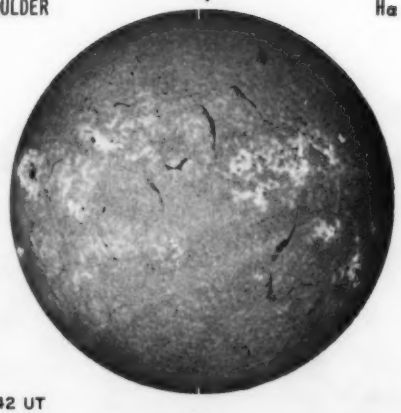


17.64-19.07 UT
Sp

01

01

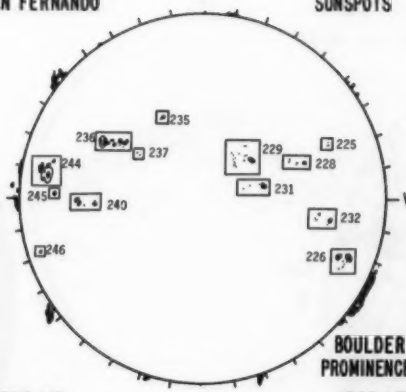
BOULDER Np Hα



E W

1642 UT Sp

SAN FERNANDO Np SUNSPOTS



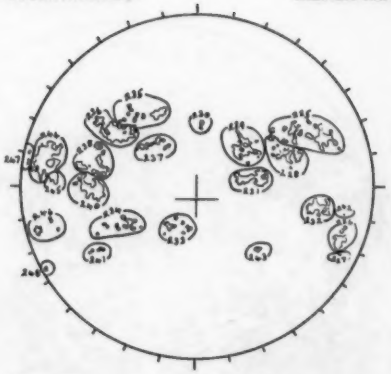
E W

1648 UT Sp

BOULDER PROMINENCES

1642 UT

HALE OBSERVATORIES Np CALCIUM REPORT



E W

2232 UT Sp

	G000	JA
25-	3900-	3.5
26-	1500-	4.0
27-	0100-	2.5
28-	1600-	3.5
29-	1700-	3.5
30-	0200-	2.5
31-	1400-	3.5
32-	1300-	3.5
33-	0500-	3.0
34-	0800-	3.0
35-	1100-	3.5
36-	2900-	3.5
37-	0600-	3.0
38-	1400-	3.5
40-	2100-	3.5
41-	0200-	3.0
42-	0100-	3.0
43-	0100-	3.0
44-	5100-	4.0
45-	0800-	4.0
46-	0700-	3.5
47-	0300-	2.5
48-	0200-	2.5

Np

STANFORD

MAGNETOGRAM

Solid - Plus; zero level

Dashed - Minus

NOSC LA POSTA Np 2.0 CM

NO DATA

E SCHEDULE W

---- UT Sp Ant. Temp. Unit 100° K

NOSC LA POSTA Np 8.6 MM

NO DATA

E SCHEDULE W

---- UT Sp Ant. Temp. Unit 100° K

E W

NO DATA 1, 5, 7, 8, 10, 11, 17, 21, 22, 29, 30

Levels

0 μT

± 50

±100

±200

Sp

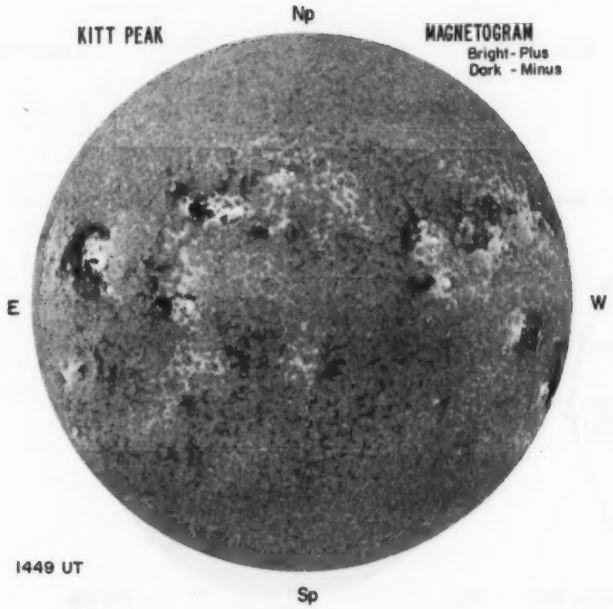
61

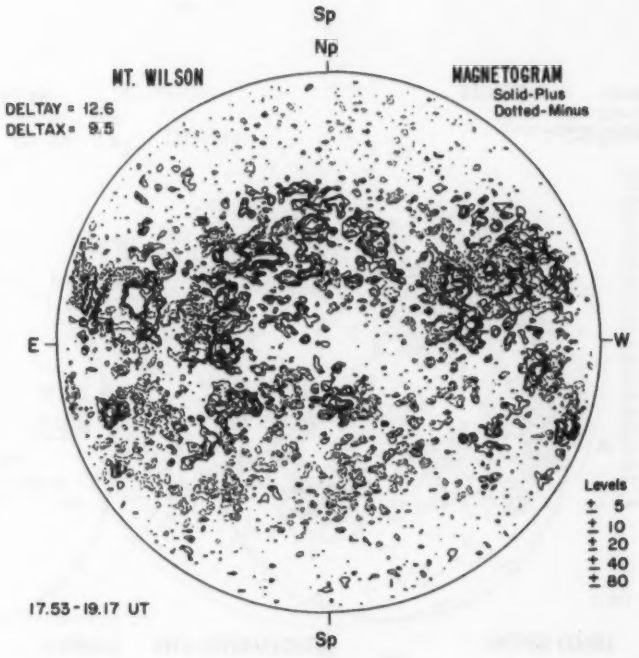
Nov 80

NOVEMBER 2, 1980 (P = 24.34, B_o = 4.23, L_o = 225.15)

SACRAMENTO PEAK Np CORONA (1.15 $R_\odot$)
5303 Å

E NO DATA 2, 9, 11, 13, 15, 16, 17, 21, 25, 30 W

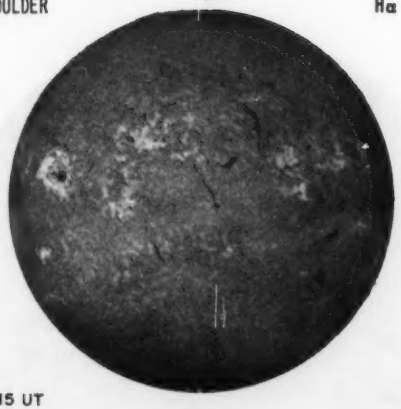




02

BOULDER

Np



E W

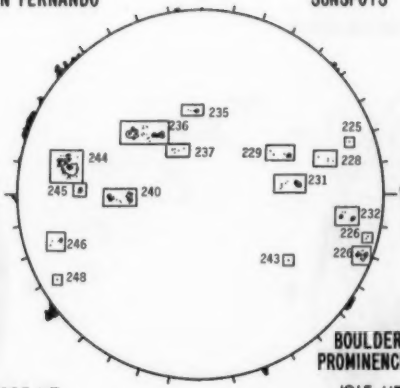
Sp

1915 UT

Hα

SAN FERNANDO

Np



E W

Sp

1625 UT

SUNSPOTS

BOULDER PROMINENCES

1915 UT

HALE OBSERVATORIES

Np

E W

Sp

1856 UT

CALCIUM REPORT

	GOOD	JA
25-	2900	3.5
26-	1200	4.0
28-	1100	3.5
29-	1500	3.5
30-	0300	2.5
31-	1200	3.5
32-	1000	3.5
33-	0400	3.0
34-	0600	3.0
35-	0700	3.5
36-	2600	3.5
37-	0500	3.0
38-	0900	3.0
40-	1800	3.5
41-	0100	3.0
43-	0100	2.5
44-	5900	4.5
45-	0300	4.0
46-	0900	4.0
47-	0400	2.5
48-	0100	3.0

NOSC LA POSTA Np 2.0 CM

NO DATA

E SCHEDULE W

---- UT Sp Ant. Temp. Unit 100° K

NOSC LA POSTA Np 8.6 MM

NO DATA

E SCHEDULE W

---- UT Sp Ant. Temp. Unit 100° K

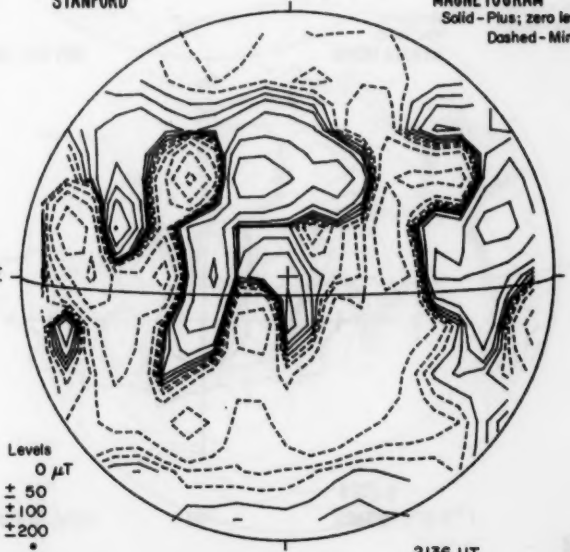
STANFORD

Np

MAGNETOGRAM

Solid - Plus; zero level

Dashed - Minus



Levels 0 μT

± 50

±100

±200

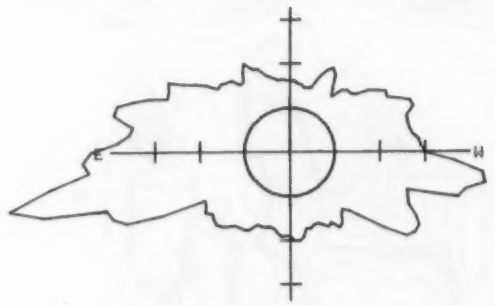
E W

Sp

2136 UT

NOVEMBER 3, 1980 (P = 24.16, B_o = 4.13, L_o = 211.97)

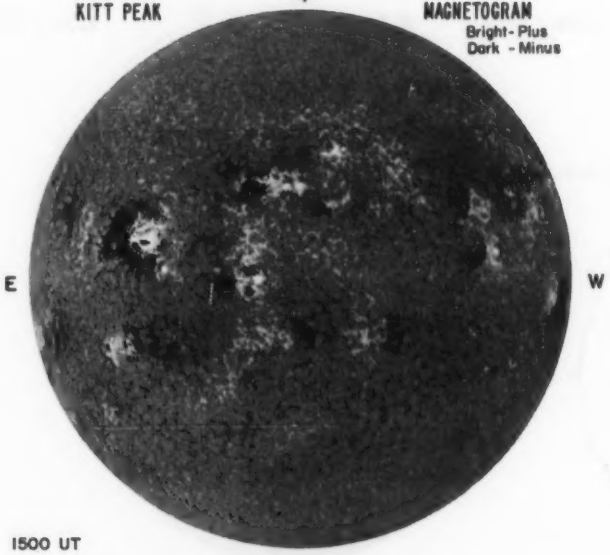
SACRAMENTO PEAK Np CORONA (1.15 $R_\odot$)
5303 Å



1616 UT

Sp

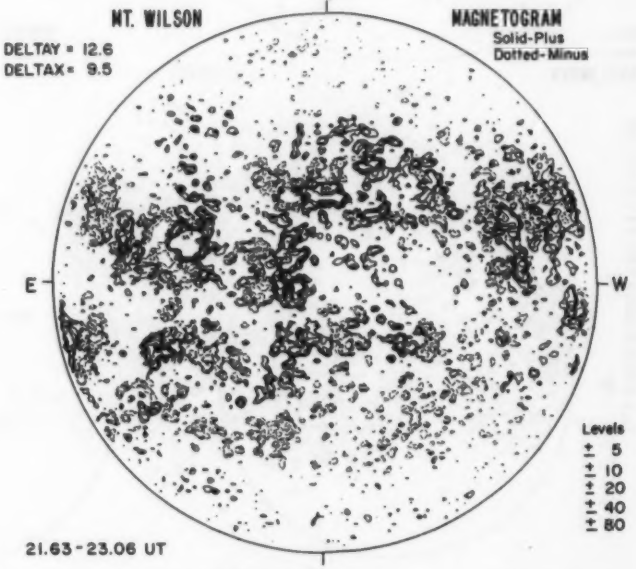
KITT PEAK Np MAGNETOGRAM
Bright - Plus
Dark - Minus



1500 UT

Sp

MT. WILSON Np MAGNETOGRAM
Solid-Plus
Dotted-Minus
DELTAY = 12.6
DELTAX = 9.5

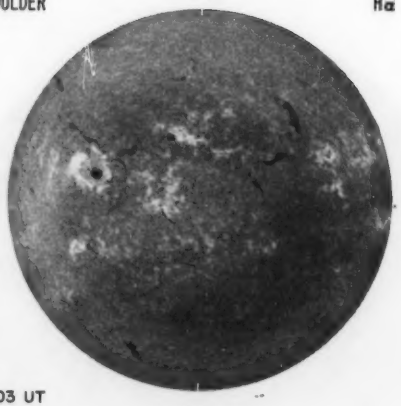


21.63 - 23.06 UT

Sp

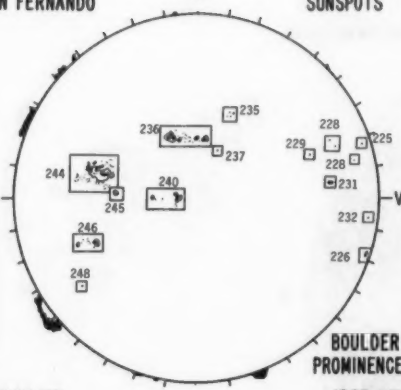
03

BOULDER



1903 UT

SAN FERNANDO



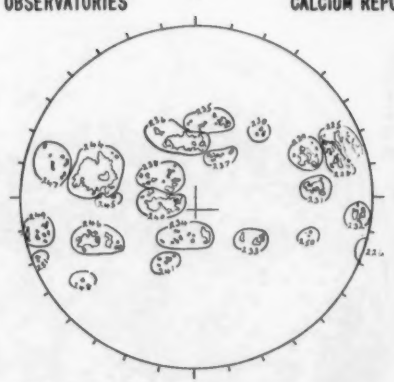
2045 UT

SUNSPOTS

BOULDER PROMINENCES

1903 UT

HALE OBSERVATORIES



1927 UT

CALCIUM REPORT

	GOOD	JA
25-	2000	3.0
26-	0500	3.5
28-	1300	3.0
29-	1200	3.5
30-	0200	2.5
31-	1000	3.0
32-	1000	3.0
33-	0500	3.0
34-	0700	3.0
35-	0700	3.5
36-	2600	3.5
37-	0300	3.0
38-	0900	3.0
40-	1900	3.5
41-	0300	3.0
44-	0800	4.0
45-	0200	3.0
46-	2000	3.5
47-	0800	3.0
48-	0100	2.5
49-	1100	3.0
50-	0100	2.5
51-	0200	2.5

NOSC LA POSTA Np 2.0 CM

NO DATA

E EQUIPMENT W

---- UT Sp Ant. Temp. Unit 100° K

NOSC LA POSTA Np 8.6 MM

NO DATA

E EQUIPMENT W

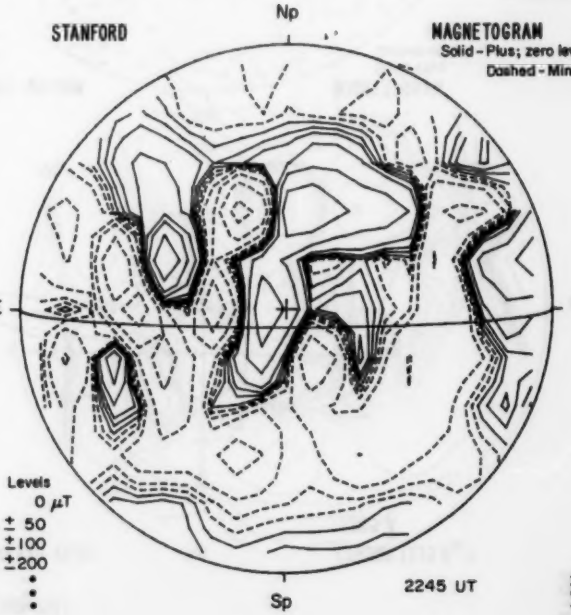
---- UT Sp Ant. Temp. Unit 100° K

STANFORD

MAGNETOGRAM

Solid - Plus; zero level

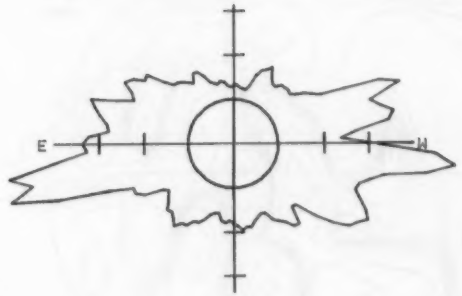
Dashed - Minus



2245 UT

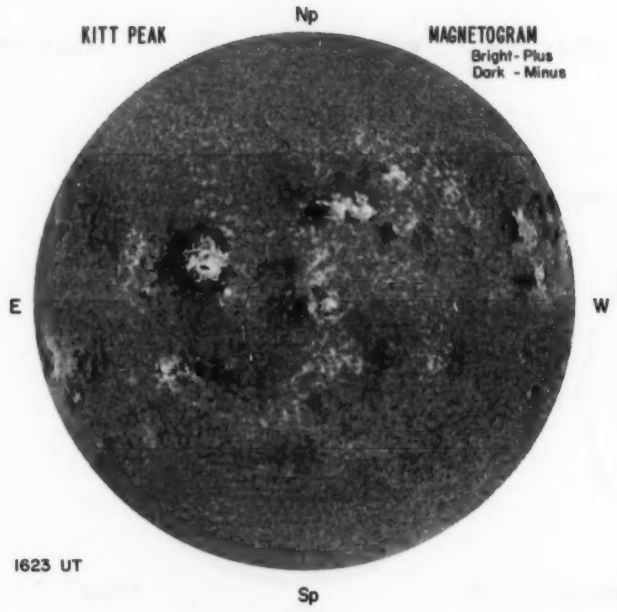
NOVEMBER 4, 1980 (P = 23.97, B_o = 4.02, L_o = 198.78)

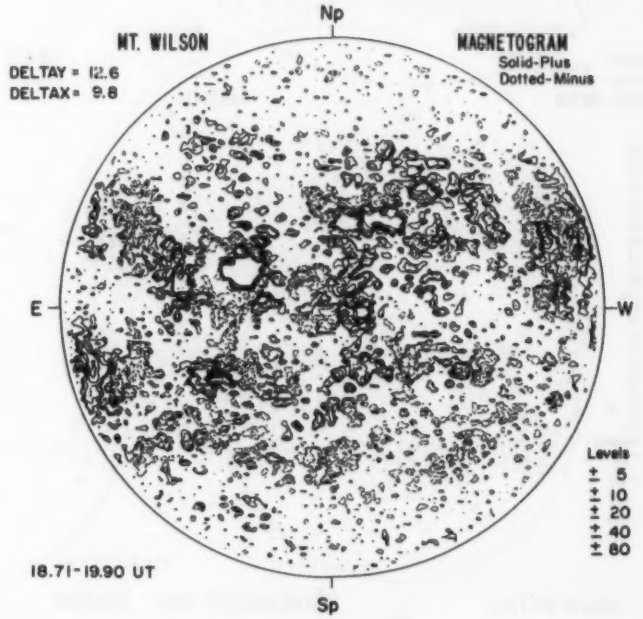
SACRAMENTO PEAK Np CORONA (1.15 $R_\odot$)
5303 Å



1954 UT

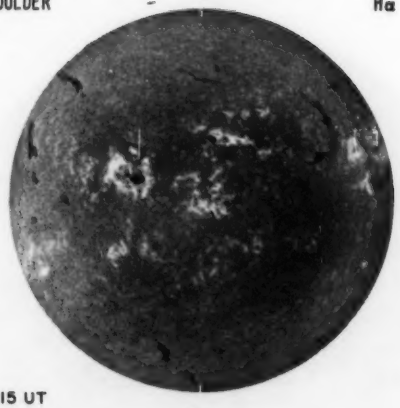
Sp





04

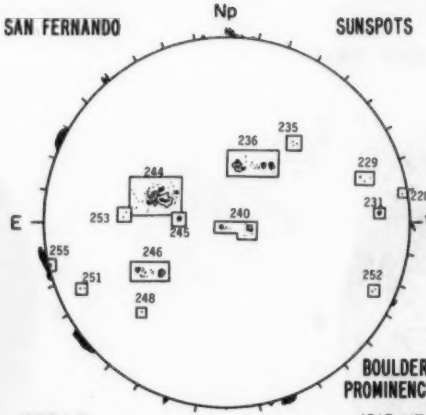
BOULDER



1915 UT

Hα

SAN FERNANDO



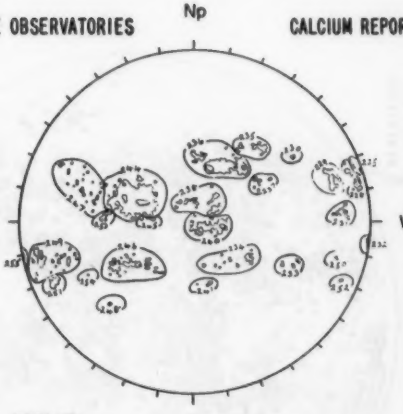
1756 UT

SUNSPOTS

BOULDER PROMINENCES

1915 UT

HALE OBSERVATORIES



2241 UT

CALCIUM REPORT

	GOOD	JA
25-	0500	3.0
28-	1000	3.0
29-	1100	3.5
30-	0100	2.5
31-	0700	3.5
32-	0300	3.0
33-	0300	3.0
34-	0700	3.0
35-	0700	3.0
36-	2900	3.5
37-	0400	3.0
38-	0900	3.0
40-	1100	3.5
41-	0100	3.0
44-	0800	4.0
45-	0200	3.0
46-	1400	3.5
47-	0900	3.0
48-	0100	2.5
49-	1700	3.0
51-	0600	3.5
52-	0100	3.0
53-	0300	3.0
55-	0200	2.5

NOSC LA POSTA

Np

2.0 CM

NO DATA

E

EQUIPMENT

W

---- UT

Sp

Ant. Temp. Unit 100° K

NOSC LA POSTA

Np

8.6 MM

NO DATA

E

EQUIPMENT

W

---- UT

Sp

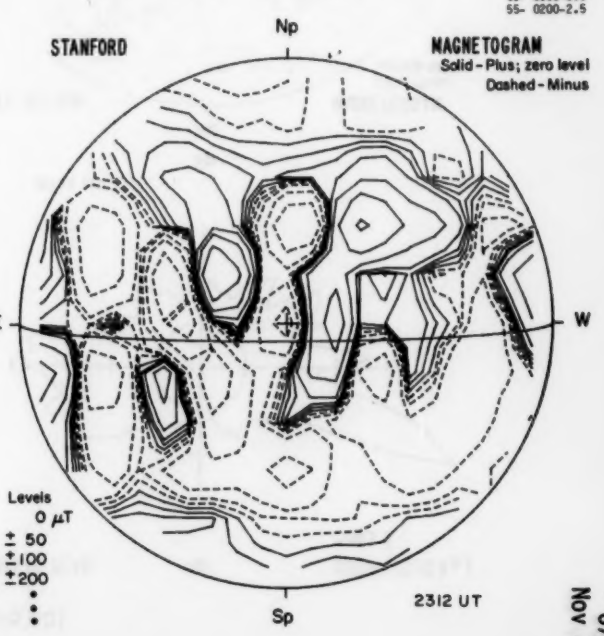
Ant. Temp. Unit 100° K

STANFORD

MAGNETOGRAM

Solid - Plus; zero level

Dashed - Minus



Levels

0 μT

± 50

± 100

± 200

2312 UT

67

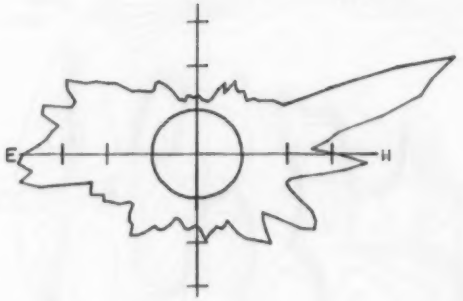
Nov 80

NOVEMBER 5, 1980 (P = 23.77, B_o = 3.92, L_o = 185.60)

SACRAMENTO PEAK

Np

CORONA (1.15 $R_\odot$)
5303 Å



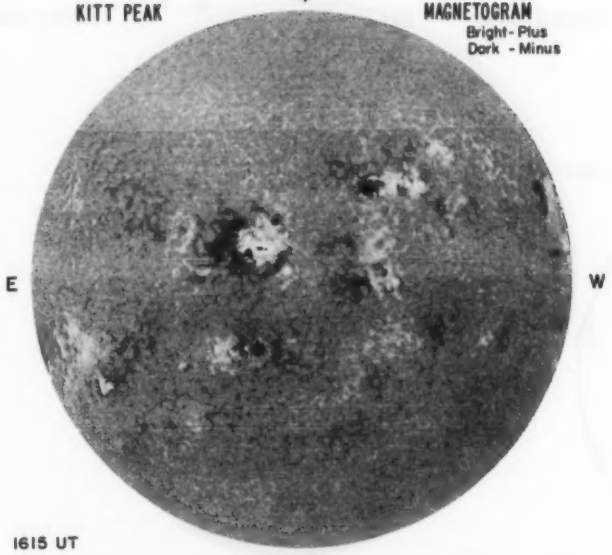
2033 UT

Sp

KITT PEAK

Np

MAGNETOGRAM
Bright - Plus
Dark - Minus



1615 UT

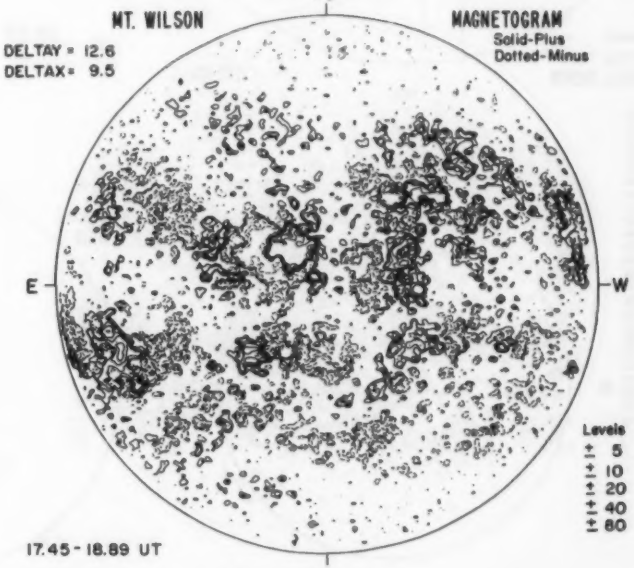
Sp

MT. WILSON

Np

MAGNETOGRAM
Solid-Plus
Dotted-Minus

DELTAY = 12.6
DELTAX = 9.5



17.45 - 18.89 UT

Sp

05

05

BOULDER

Np

Hα

E W

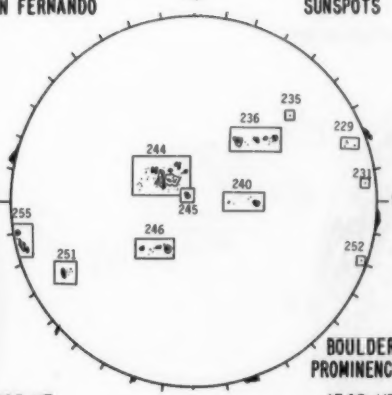
1543 UT

Sp

SAN FERNANDO

Np

SUNSPOTS



E W

1723 UT

Sp

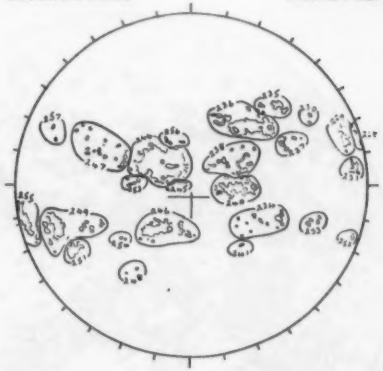
BOULDER PROMINENCES

1542 UT

HALE OBSERVATORIES

Np

CALCIUM REPORT



E W

1903 UT

Sp

GOOD	JA
28- 0600-2.5	
29- 1100-3.0	
31- 0700-3.0	
33- 0400-3.0	
34- 0700-2.5	
35- 0600-3.0	
36- 3100-3.5	
37- 0400-3.0	
38- 1100-3.0	
40- 1700-3.5	
41- 0100-2.5	
44- 6500-4.0	
45- 0200-3.5	
46- 2100-3.5	
47- 1000-3.0	
48- 0100-2.5	
49- 2500-3.5	
51- 1100-4.0	
52- 0200-3.5	
53- 0300-3.0	
54- 0100-2.5	
55- 2200-4.0	
56- 0200-3.5	

STANFORD

Np

MAGNETOGRAM

Solid - Plus; zero level

Dashed - Minus

NOSC LA POSTA

Np

2.0 CM

NO DATA

E WEATHER W

---- UT

Sp

Ant. Temp. Unit 100° K

NOSC LA POSTA

Np

8.6 MM

NO DATA

E WEATHER W

---- UT

Sp

Ant. Temp. Unit 100° K

E W

NO DATA

Sp

Levels

0 μT

± 50

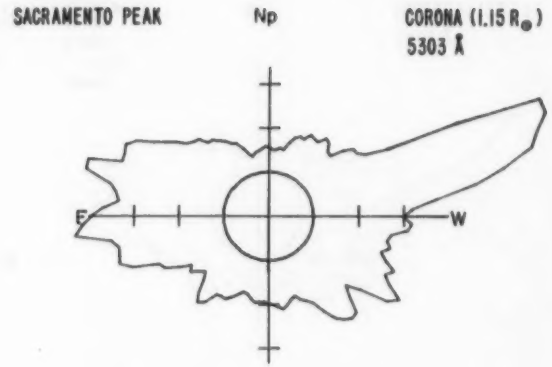
±100

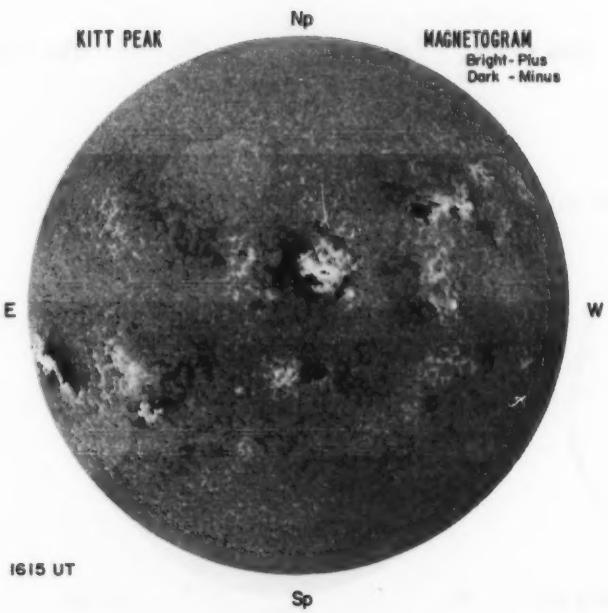
±200

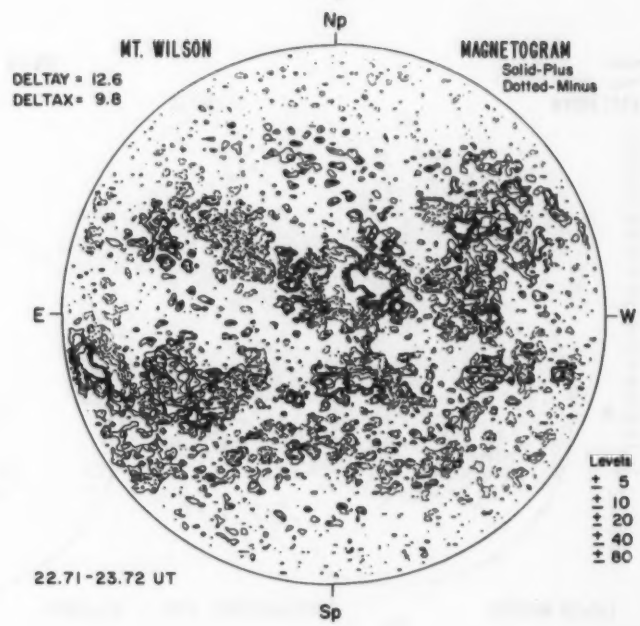
69

Nov 80

NOVEMBER 6, 1980 (P=23.57, B_0=3.81, L_0=172.41)







06

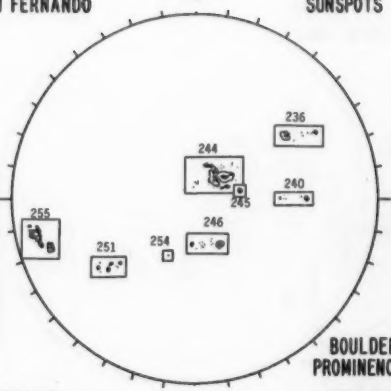
06

BOULDER Np Hα

E W

1941 UT Sp

SAN FERNANDO Np SUNSPOTS



E W

2123 UT Sp

BOULDER PROMINENCES

NO DATA

HALE OBSERVATORIES Np CALCIUM REPORT

E W

2335 UT Sp

	GOOD	JA
29-	0600-3.0	
30-	0100-2.5	
31-	0100-2.5	
33-	0200-2.5	
34-	0400-2.5	
35-	0500-3.0	
36-	3000-3.5	
37-	0100-2.5	
38-	0800-3.0	
40-	1100-3.0	
41-	0100-2.5	
44-	6800-4.0	
45-	0200-3.5	
46-	1500-3.5	
47-	1200-3.0	
48-	0100-3.0	
49-	2300-3.5	
51-	1300-3.5	
53-	0200-3.0	
54-	0200-3.0	
55-	3200-4.0	
56-	0100-3.0	
57-	0300-2.5	

NOSC LA POSTA Np 2.0 CM

NO DATA

E WEATHER W

---- UT Sp Ant. Temp. Unit 100° K

NOSC LA POSTA Np 8.6 MM

NO DATA

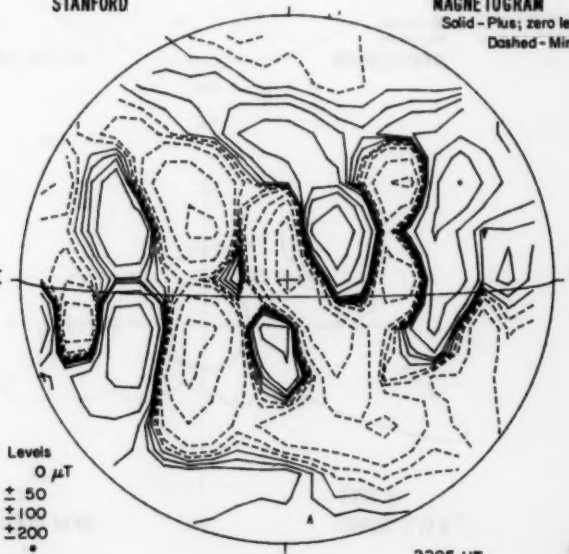
E WEATHER W

--- UT Sp Ant. Temp. Unit 100° K

STANFORD Np MAGNETOGRAM

Solid - Plus; zero level

Dashed - Minus



E W

Levels

0 μT

± 50

±100

±200

2205 UT Sp

71

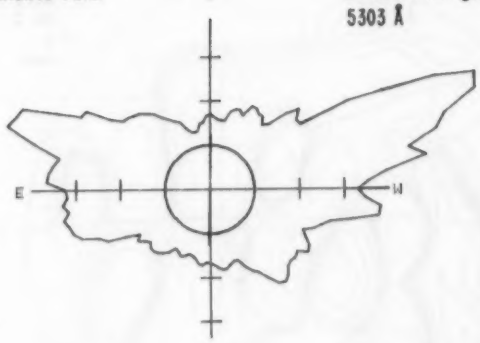
Nov 80

NOVEMBER 7, 1980 (P = 23.36, B_o = 3.70, L_o = 159.23)

SACRAMENTO PEAK

Np

CORONA (1.15 $R_\odot$)
5303 Å

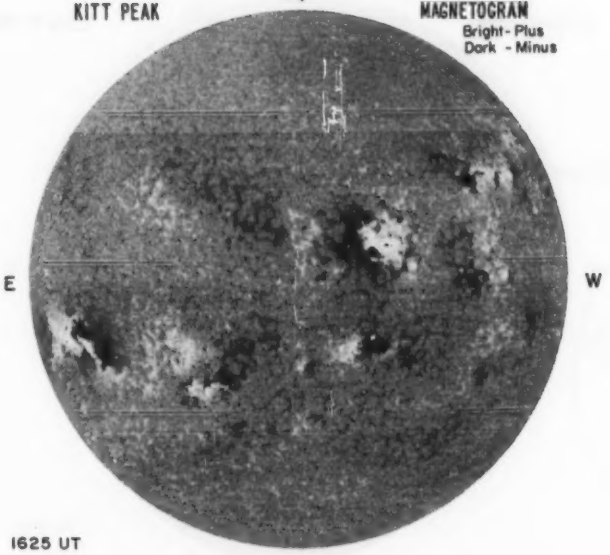


1650 UT

KITT PEAK

Np

MAGNETOGRAM
Bright - Plus
Dark - Minus



1625 UT

Sp

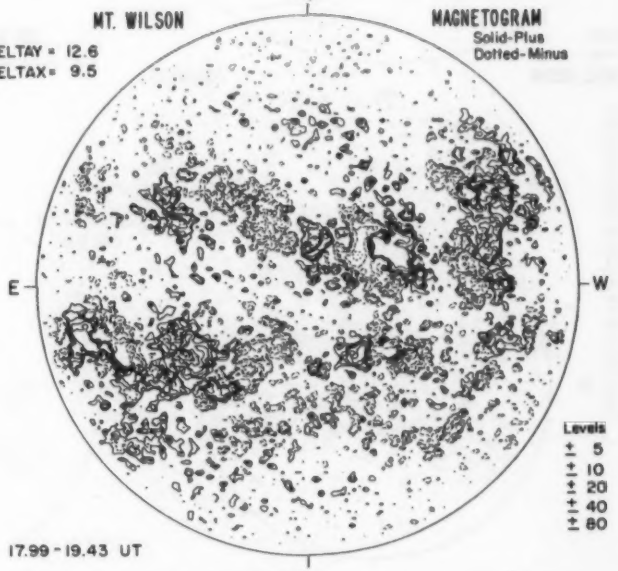
Sp

Np

MT. WILSON

DELTAY = 12.6
DELTAX = 9.5

MAGNETOGRAM
Solid-Plus
Dotted-Minus



17.99 - 19.43 UT

Sp

07

Np

Np

Np

Sp

Sp

07

Np

Hα

E

NO DATA 7, 13, 14, 15, 22, 23, 24, 28, 29

W

Sp

SAN FERNANDO

Np

SUNSPOTS

236

247

244

240

245

255

249

246

251

254

E

W

BOULDER PROMINENCES

2020 UT

2053 UT

Sp

HALE OBSERVATORIES

Np

CALCIUM REPORT

E

W

2216 UT

Sp

GOOD	JA
34-	0300-2.5
35-	0300-2.5
36-	3100-3.0
37-	0300-2.5
38-	0500-3.0
40-	0700-3.0
41-	0100-2.5
44-	4900-3.5
45-	0200-3.0
46-	1700-3.5
47-	1200-2.5
48-	0100-2.5
49-	3000-3.0
51-	1700-3.5
53-	0100-3.0
54-	0200-3.0
55-	3500-3.5
57-	0300-2.5

Np

STANFORD

MAGNETOGRAM

Solid - Plus; zero level

Dashed - Minus

NOSC LA POSTA

Np

2.0 CM

E

W

1640 UT

Sp

Ant. Temp. Unit 100° K

NOSC LA POSTA

Np

8.6 MM

E

W

1714 UT

Sp

Ant. Temp. Unit 100° K

E

NO DATA

W

Levels

0 μT

± 50

±100

±200

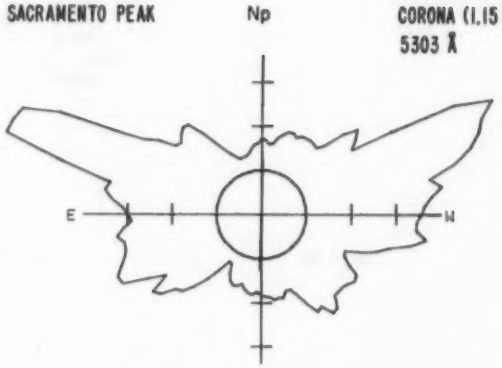
Sp

73

Nov 80

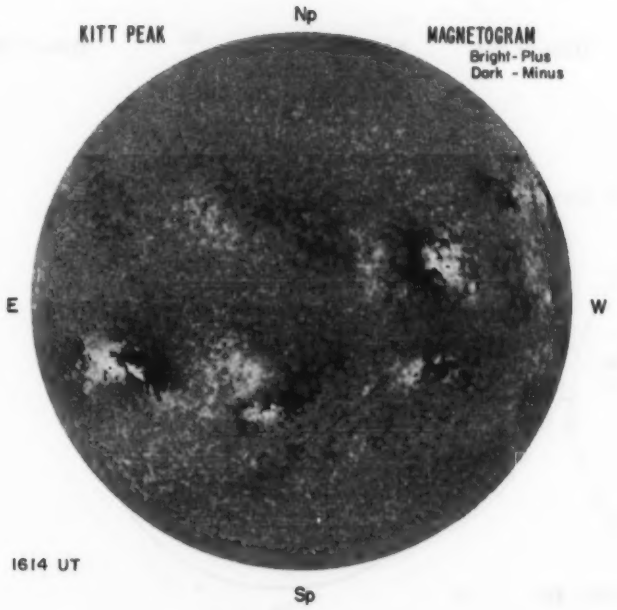
NOVEMBER 8, 1980 (P = 23.14, B_o = 3.59, L_o = 146.04)

SACRAMENTO PEAK



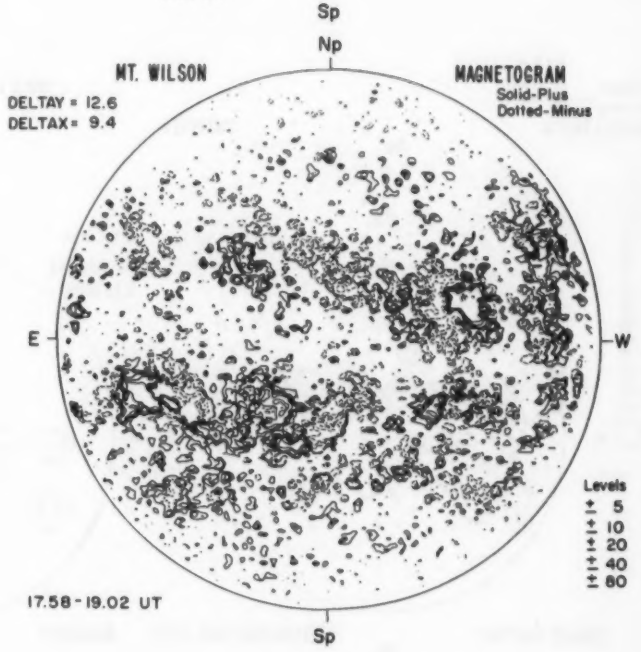
1707 UT

KITT PEAK



1614 UT

MT. WILSON



17.58 - 19.02 UT

08

Np

SAN FERNANDO

Np

SUNSPOTS

HALE OBSERVATORIES

Np

CALCIUM REPORT

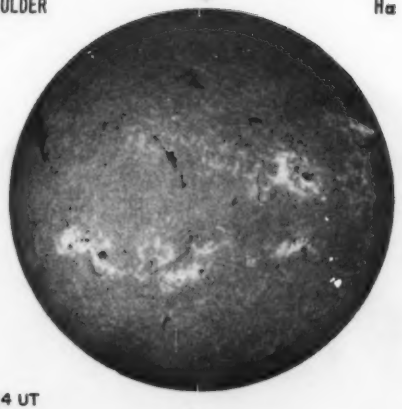
Sp

08

BOULDER

Np

Hα



E W

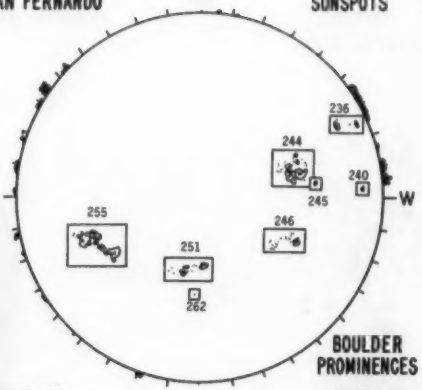
1614 UT

Sp

SAN FERNANDO

Np

SUNSPOTS



E W

2015 UT

Sp

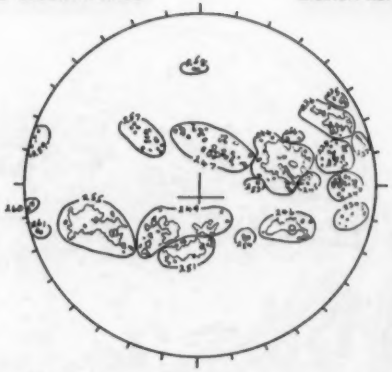
BOULDER PROMINENCES

1619 UT

HALE OBSERVATORIES

Np

CALCIUM REPORT



E W

1836 UT

Sp

POOR	JA

34- 0300-2.5
35- 0300-3.0
36- 2400-3.0
37- 0300-2.5
38- 0700-2.5
40- 0600-2.5
44- 5200-3.5
45- 0300-3.5
46- 1800-3.5
47- 1000-3.0
49- 2400-3.5
51- 2600-3.0
53- 0100-3.0
54- 0100-3.0
55- 4600-3.5
57- 0500-3.0

Np

STANFORD

MAGNETOGRAM

Solid - Plus; zero level

Dashed - Minus

NOSC LA POSTA

Np

2.0 CM

NO DATA

E SCHEDULE W

---- UT

Sp

Ant. Temp. Unit 100° K

NOSC LA POSTA

Np

8.6 MM

NO DATA

E SCHEDULE W

---- UT

Sp

Ant. Temp. Unit 100° K

E NO DATA W

Levels

0 μT

± 50

±100

±200

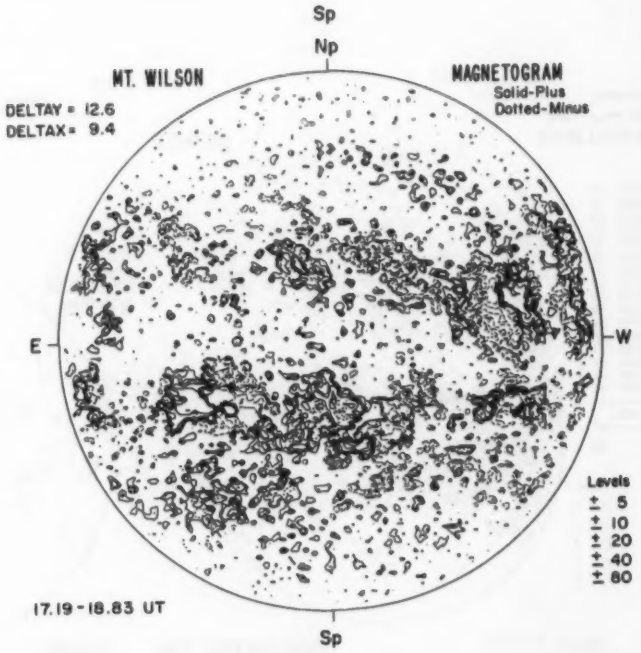
Sp

75 Nov 80

NOVEMBER 9, 1980 (P = 22.91, B_o = 3.48, L_o = 132.86)

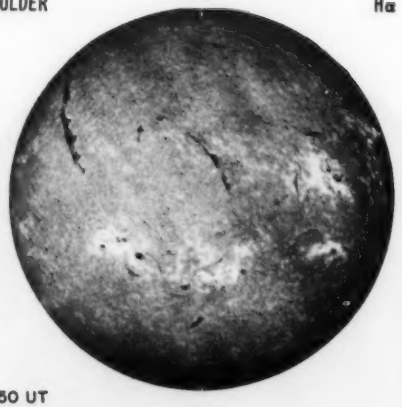
SACRAMENTO PEAK Np CORONA (1.15 $R_\odot$)
5303 Å

E NO DATA W



09

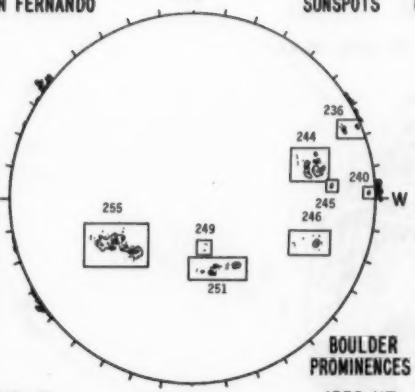
BOULDER Np Hα



E W

1550 UT Sp

SAN FERNANDO Np SUNSPOTS



E W

1615 UT Sp

HALE OBSERVATORIES Np CALCIUM REPORT

E W

1550 UT BOULDER PROMINENCES

1829 UT Sp

FAIR	JA
36- 1400-3.0	
38- 0200-2.5	
40- 0300-2.5	
44- 2500-3.5	
45- 0200-3.0	
46- 1400-3.5	
47- 0700-2.5	
49- 3500-3.0	
51- 2600-3.0	
53- 0100-2.5	
54- 0100-2.5	
55- 6100-3.5	

NOSC LA POSTA Np 2.0 CM

NO DATA

E SCHEDULE W

---- UT Sp Ant. Temp. Unit 100° K

NOSC LA POSTA Np 8.6 MM

NO DATA

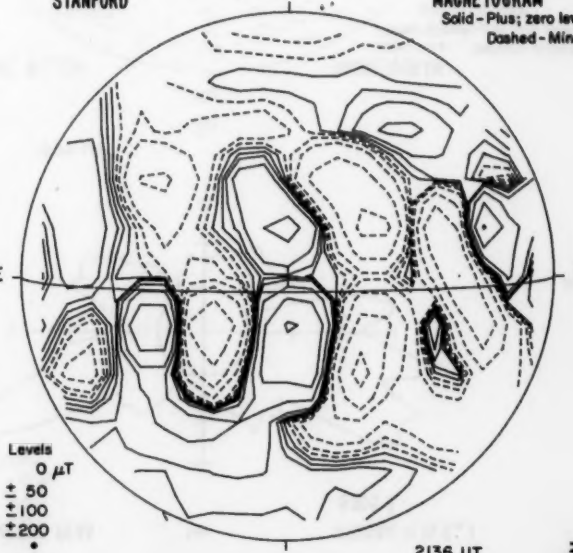
E SCHEDULE W

---- UT Sp Ant. Temp. Unit 100° K

STANFORD Np MAGNETOGRAM

Solid - Plus; zero level

Dashed - Minus



E W

Levels 0 μT

± 50

±100

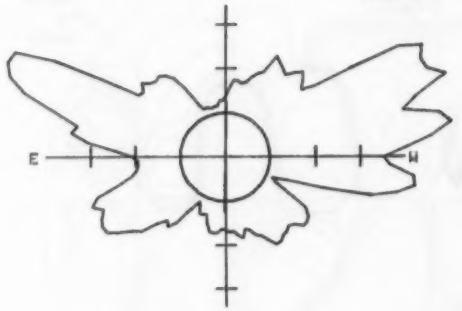
±200

2136 UT Sp

77 Nov 80

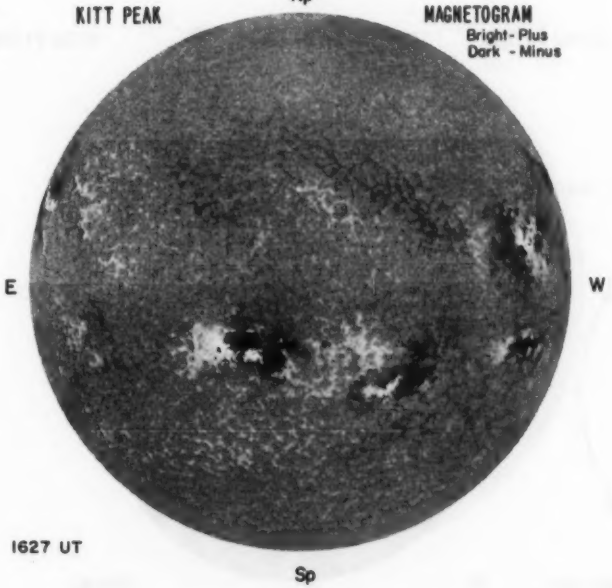
NOVEMBER 10, 1980 (P = 22.68, B_o = 3.37, L_o = 119.68)

SACRAMENTO PEAK Np CORONA (1.15 $R_\odot$)
5303 Å



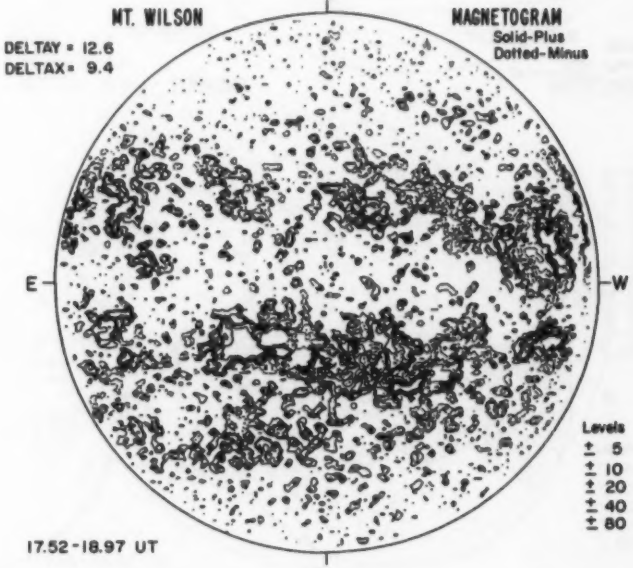
1609 UT

KITT PEAK Np MAGNETOGRAM
Bright - Plus
Dark - Minus



1627 UT

Sp
Np
MT. WILSON MAGNETOGRAM
Solid-Plus
Dotted-Minus
DELTAY = 12.6
DELTAX = 9.4



17.52-18.97 UT

Sp

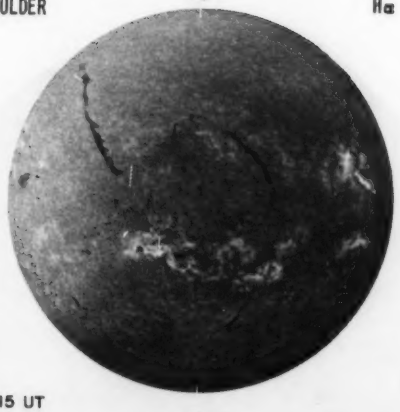
10

10

BOULDER

Np

Hα



E W

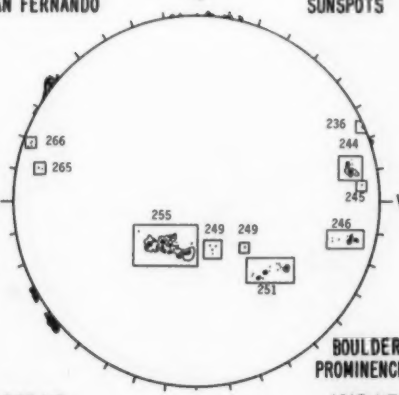
1615 UT

Sp

SAN FERNANDO

Np

SUNSPOTS



E W

2045 UT

Sp

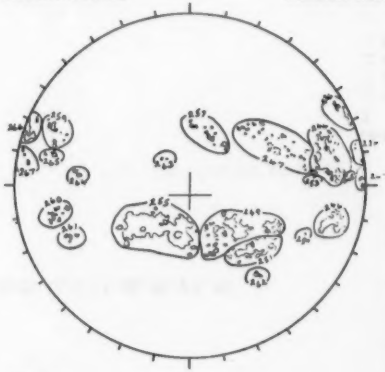
BOULDER PROMINENCES

1615 UT

HALE OBSERVATORIES

Np

CALCIUM REPORT



E W

1843 UT

Sp

G000	JA
36-	0500-2.5
40-	0200-2.5
44-	0200-3.5
45-	0100-2.5
46-	2000-3.0
47-	1300-3.0
49-	2100-3.5
51-	1400-3.5
55-	0300-3.5
57-	0400-2.5
59-	0300-2.5
60-	0400-2.5
65-	0200-2.5
66-	0900-2.5

STANFORD

Np

MAGNETOGRAM

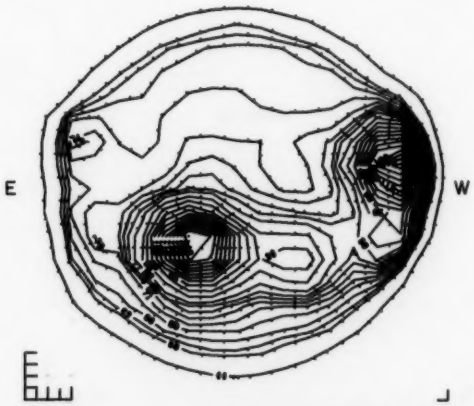
Solid - Plus; zero level

Dashed - Minus

NOSC LA POSTA

Np

2.0 CM



E W

1643 UT

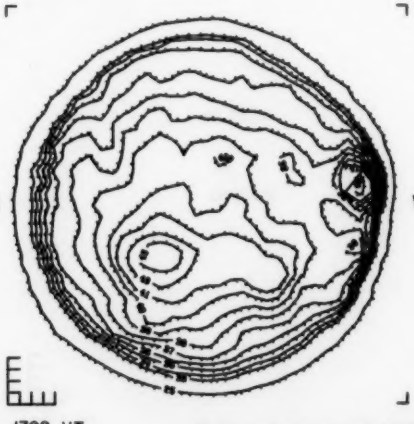
Sp

Ant. Temp. Unit 100° K

NOSC LA POSTA

Np

8.6 MM



E W

1709 UT

Sp

Ant. Temp. Unit 100° K

E

NO DATA

W

Levels

0 μT

± 50

± 100

± 200

Sp

Nov 80

79

NOVEMBER 11, 1980 (P = 22.43, B_o = 3.25, L_o = 106.49)

SACRAMENTO PEAK

Np

CORONA (1.15 $R_\odot$)
5303 Å

E

NO DATA

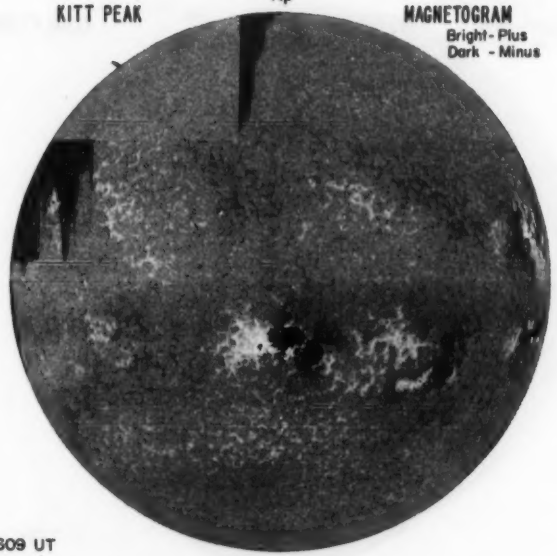
W

Sp

Np

KITT PEAK

MAGNETOGRAM
Bright - Plus
Dark - Minus



E

W

1609 UT

Sp

MT. WILSON

DELTAY =
DELTAX =

MAGNETOGRAM
Solid - Plus
Dotted - Minus

E

NO DATA 11, 12, 17, 25, 28, 29, 30

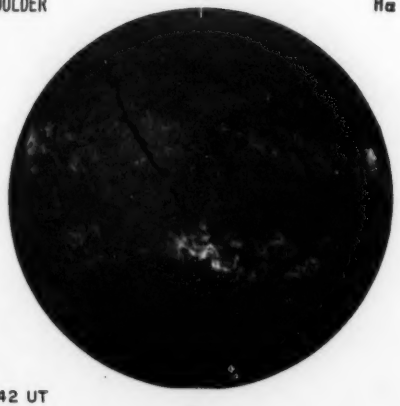
W

Levels
± 5
± 10
± 20
± 40
± 80

Sp

11

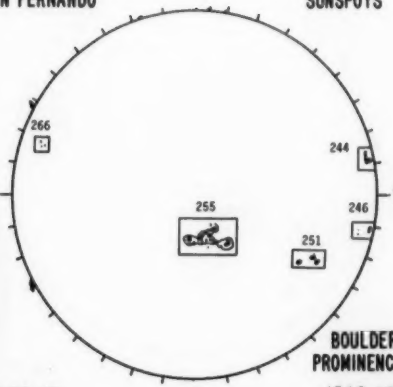
BOULDER Np Hα



E W

1542 UT Sp

SAN FERNANDO Np SUNSPOTS



E W E

2100 UT Sp

BOULDER PROMINENCES

1542 UT

HALE OBSERVATORIES Np

NO DATA 11, 12, 17, 25, 26, 27, 28, 29

E W

Sp

CALCIUM REPORT

NOSC LA POSTA Np 2.0 CM

NO DATA

E WEATHER W

---- UT Sp Ant. Temp. Unit 100° K

NOSC LA POSTA Np 8.6 MM

NO DATA

E WEATHER W

---- UT Sp Ant. Temp. Unit 100° K

STANFORD Np

NO DATA

E W

Sp

MAGNETOGRAM

Solid - Plus; zero level

Dashed - Minus

Levels

0 μT

± 50

±100

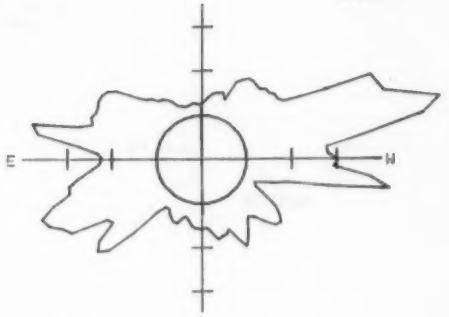
±200

81

Nov 80

NOVEMBER 12, 1980 (P = 22.18, B_o = 3.14, L_o = 93.31)

SACRAMENTO PEAK Np CORONA (1.15 $R_\odot$)
5303 Å

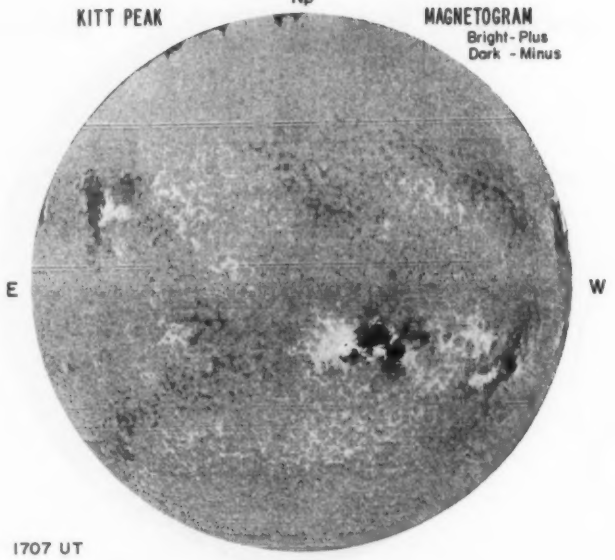


1510 UT

Sp

Np

KITT PEAK Np MAGNETOGRAM
Bright - Plus
Dark - Minus



1707 UT

Sp

MT. WILSON MAGNETOGRAM
Solid-Plus
Dotted-Minus

DELTAY =
DELTAX =

E NO DATA W

Levels
± 5
± 10
± 20
± 40
± 80

Sp

12

BOULDER Np Hα SAN FERNANDO Np SUNSPOTS HALE OBSERVATORIES Np CALCIUM REPORT

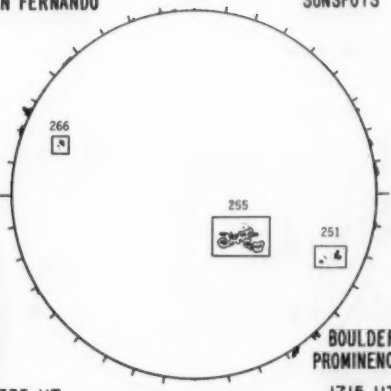
12

BOULDER Np Hα

E W

1715 UT Sp

SAN FERNANDO Np SUNSPOTS



E W

1735 UT Sp

HALE OBSERVATORIES Np CALCIUM REPORT

NO DATA

E W

Sp

BOULDER PROMINENCES

1715 UT

NOSC LA POSTA Np 2.0 CM

NO DATA

E WEATHER W

---- UT Sp Ant. Temp. Unit 100° K

NOSC LA POSTA Np 8.6 MM

NO DATA

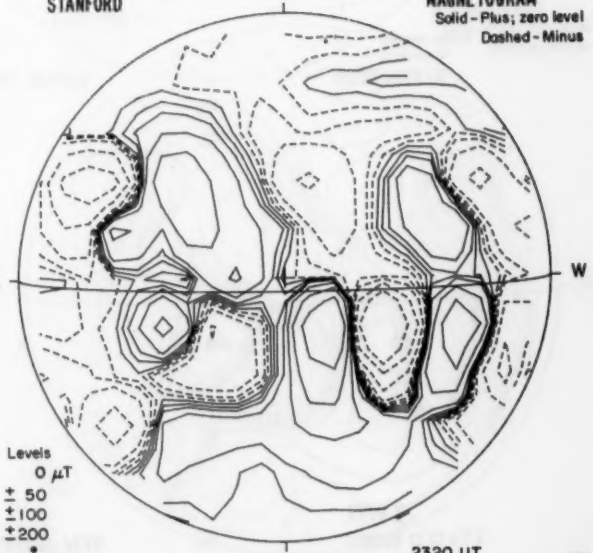
E WEATHER W

---- UT Sp Ant. Temp. Unit 100° K

STANFORD Np MAGNETOGRAM

Solid - Plus; zero level

Dashed - Minus



E W

Levels 0 μT

± 50

±100

±200

Sp 2320 UT

83

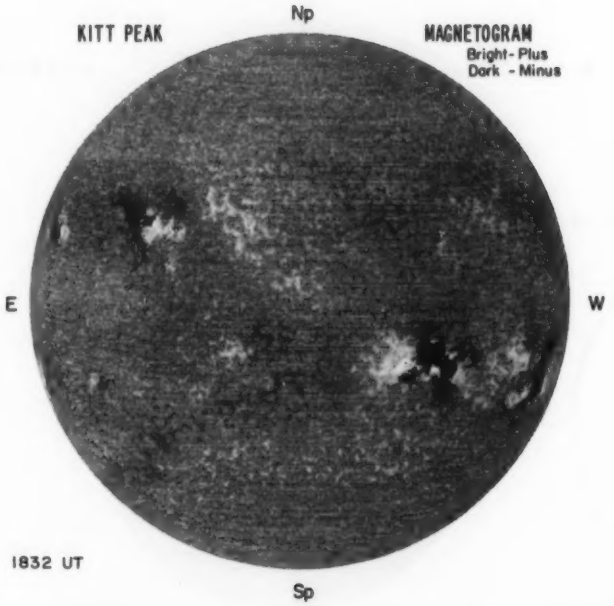
Nov 80

NOVEMBER 13, 1980 (P = 21.93, B_o = 3.03, L_o = 80.13)

SACRAMENTO PEAK — Np — CORONA (1.15 $R_\odot$) 5303 Å

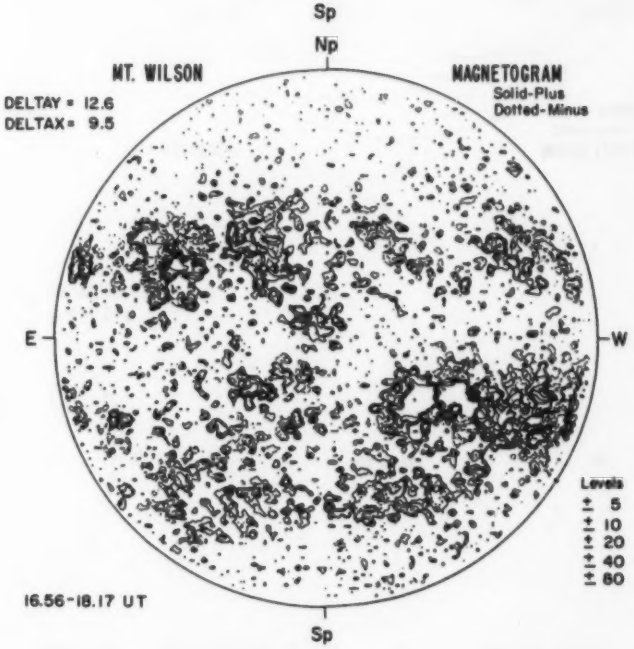
E — NO DATA — W

KITT PEAK — MAGNETOGRAM
Bright - Plus
Dark - Minus



1832 UT

MT. WILSON — MAGNETOGRAM
Solid-Plus
Dotted-Minus
DELTAY = 12.6
DELTAX = 9.5



16.56-18.17 UT

13

Np — SAN FERNANDO — Np — SUNSPOTS — HALE OBSERVATORIES — Np — CALCIUM REPORT

Np

Hα

E NO DATA W

Sp

SAN FERNANDO

Np

SUNSPOTS

E W

268 266 255 251 273

1817 UT

Sp

BOULDER PROMINENCES

NO DATA

HALE OBSERVATORIES

Np

CALCIUM REPORT

E W

GOOD	JA
49- 1500-3.0	
51- 2400-3.0	
55- 7500-3.5	
59- 0600-2.5	
60- 0400-2.5	
65- 0100-2.5	
66- 2700-3.0	
68- 1400-3.0	
69- 0200-2.5	
70- 0300-3.0	
71- 0200-2.5	

1732 UT

Sp

NOSC LA POSTA

Np

2.0 CM

E W

1833 UT

Sp

Ant. Temp. Unit 100° K

NOSC LA POSTA

Np

8.6 MM

E W

1859 UT

Sp

Ant. Temp. Unit 100° K

STANFORD

Np

MAGNETOGRAM

Solid - Plus; zero level

Dashed - Minus

E W

Levels

0 μT

± 50

±100

±200

1939 UT

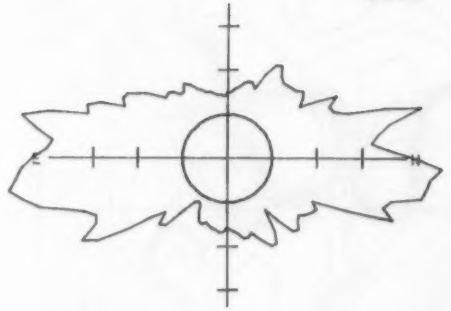
Sp

85

Nov 80

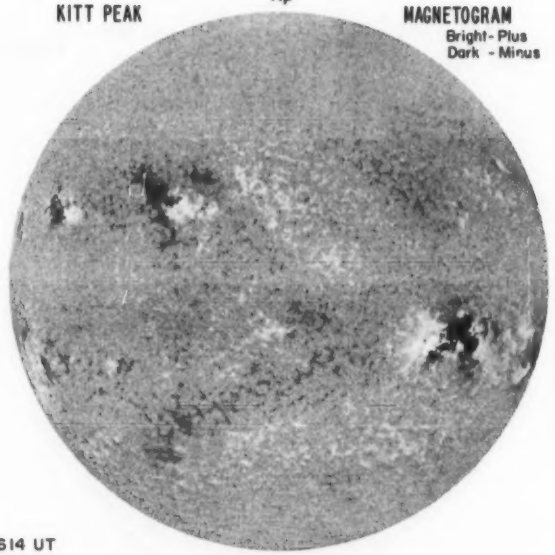
NOVEMBER 14, 1980 (P = 21.66, B_o = 2.91, L_o = 66.94)

SACRAMENTO PEAK Np CORONA (1.15 $R_\odot$)
5303 Å



1622 UT

KITT PEAK Np MAGNETOGRAM
Bright - Plus
Dark - Minus

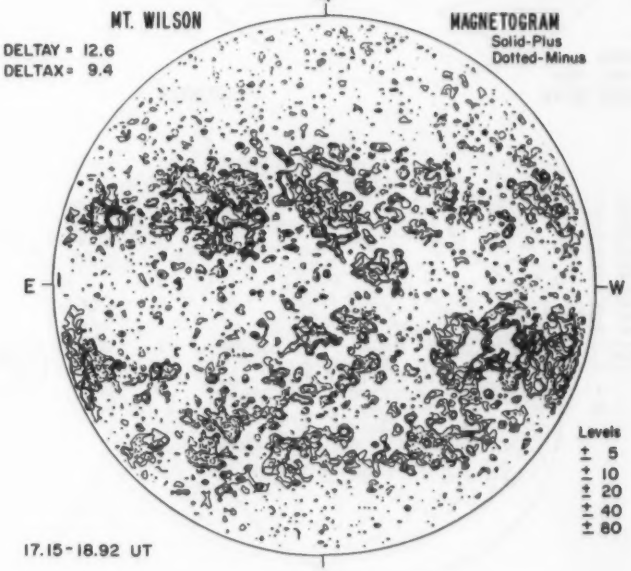


1614 UT

Sp

Sp Np

MT. WILSON MAGNETOGRAM
Solid-Plus
Dotted-Minus
DELTAY = 12.6
DELTAX = 9.4

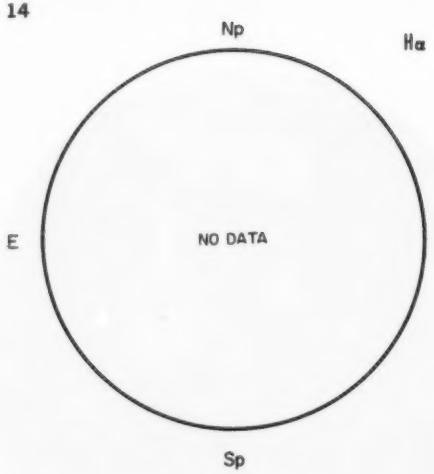


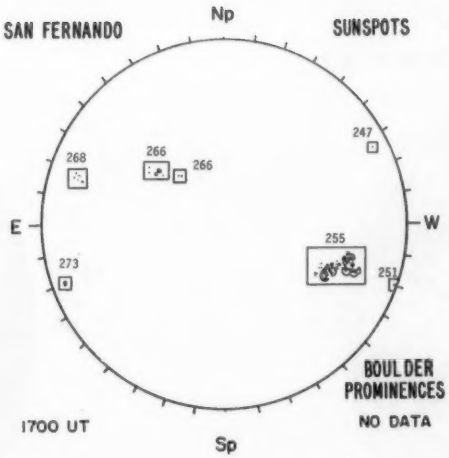
17.15 - 18.92 UT

Sp

14

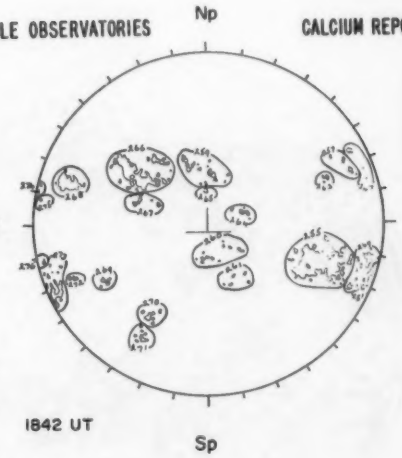
14



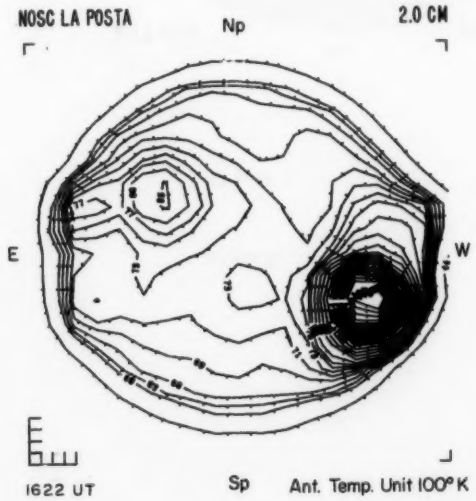


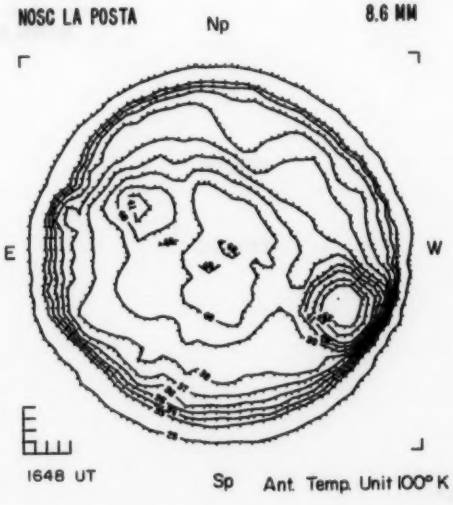
BOULDER PROMINENCES

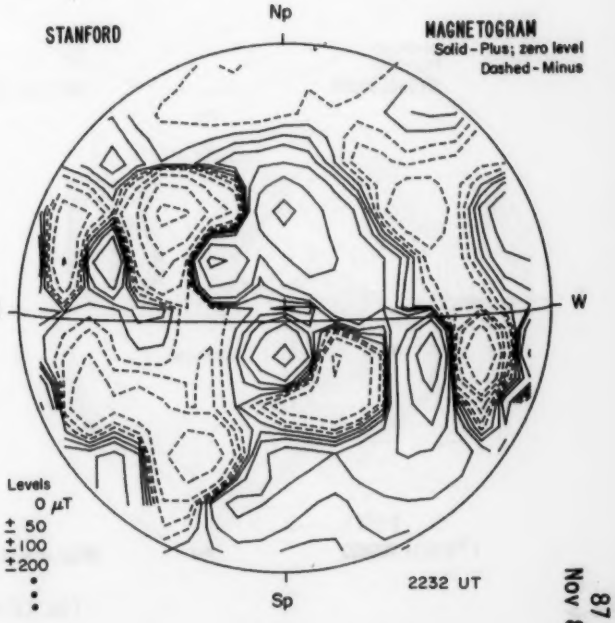
NO DATA



	GOOD	JA
47-	0700-2.5	
49-	0900-3.0	
51-	1000-3.5	
55-	5600-4.0	
57-	0200-3.0	
59-	0400-3.0	
60-	0400-3.0	
61-	0200-2.5	
63-	0100-3.0	
64-	0200-3.0	
65-	0100-3.5	
66-	3200-3.5	
67-	0400-3.0	
68-	2400-3.5	
69-	0200-3.0	
70-	0400-3.0	
71-	0400-3.0	
72-	0200-3.0	
73-	1400-3.0	
74-	0200-2.5	
75-	0100-2.5	





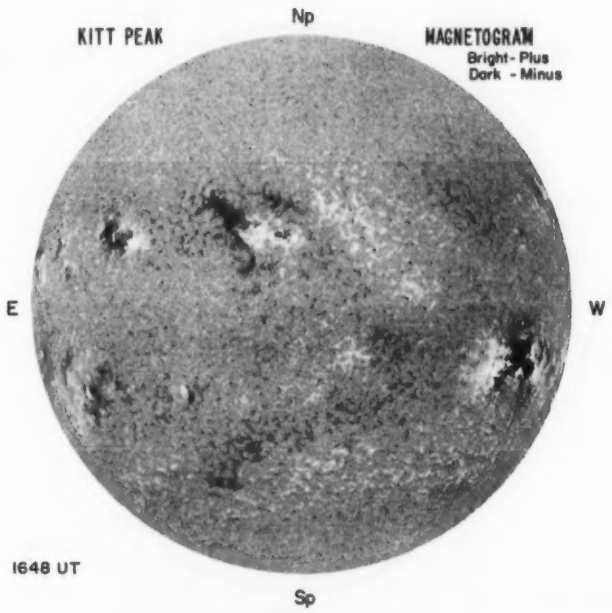


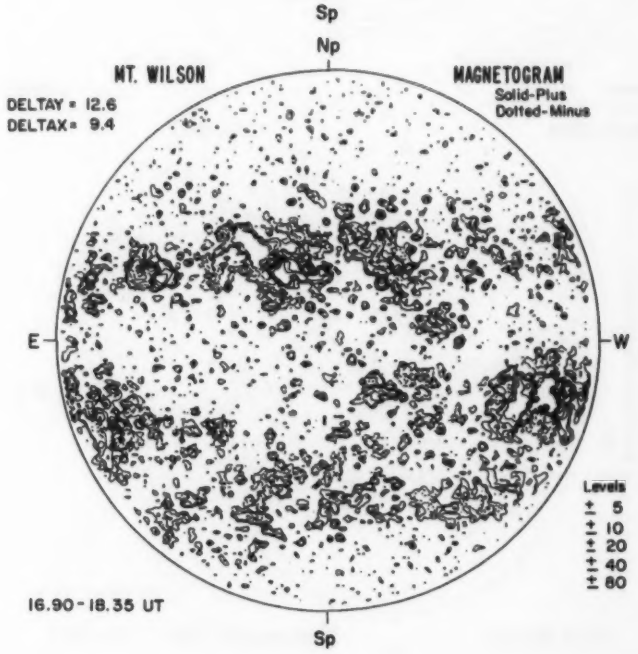
87
Nov 80

NOVEMBER 15, 1980 (P=21.39, B_0=2.79, L_0=53.76)

SACRAMENTO PEAK Np CORONA (1.15 $R_\odot$)
5303 Å

E NO DATA W





15

Np

Hα

NO DATA

E W

Sp

SAN FERNANDO

Np

268 266 266 255 273

E W

1950 UT

Sp

SUNSPOTS

BOULDER PROMINENCES

NO DATA

HALE OBSERVATORIES

Np

E W

1756 UT

Sp

CALCIUM REPORT

	POOR	JA
47-	0600	3.0
49-	0300	3.0
55-	5100	4.0
59-	0400	3.0
60-	0300	3.0
61-	0200	2.5
63-	0100	2.5
64-	0100	3.0
65-	0100	3.0
66-	3200	4.0
67-	0200	3.5
68-	2000	3.5
69-	0200	3.5
70-	0100	3.0
71-	0400	3.0
72-	0100	3.0
73-	1400	3.0
74-	0300	3.0
75-	0200	3.0
76-	0100	3.0
77-	0200	2.5
78-	0200	2.5
79-	0300	3.0

NOSC LA POSTA Np 2.0 CM

NO DATA

E SCHEDULE W

---- UT Sp Ant. Temp. Unit 100° K

NOSC LA POSTA Np 8.6 MM

NO DATA

E SCHEDULE W

---- UT Sp Ant. Temp. Unit 100° K

STANFORD

Np

MAGNETOGRAM

Solid - Plus; zero level

Dashed - Minus

E W

Levels

0 μT

± 50

±100

±200

Sp

1909 UT

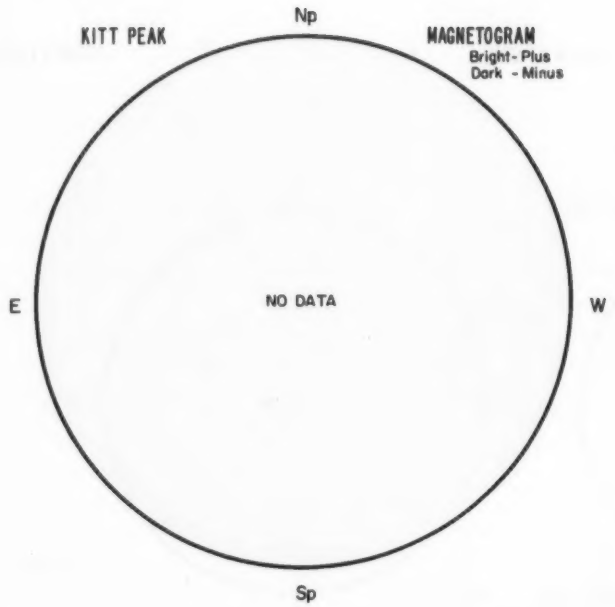
89

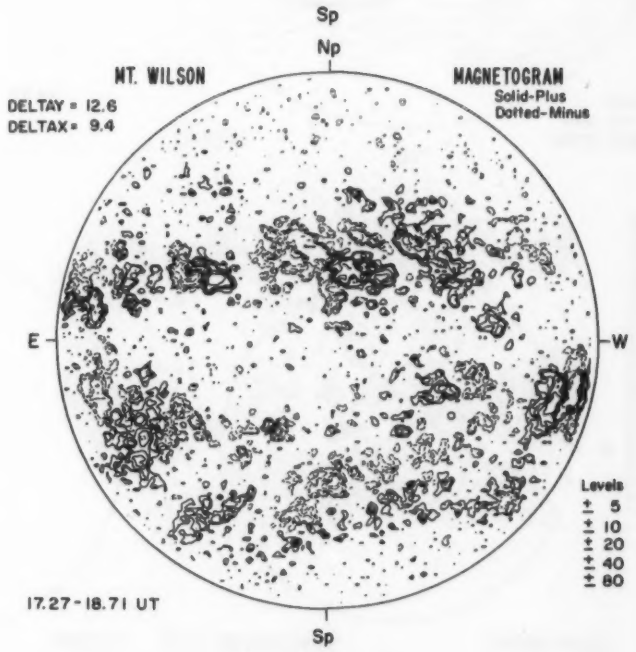
Nov 80

NOVEMBER 16, 1980 (P=21.11, B_o=2.67, L_o=40.58)

SACRAMENTO PEAK Np CORONA (1.15 $R_\odot$)
5303 Å

E NO DATA W





16

BOULDER

Np

Hα

E W

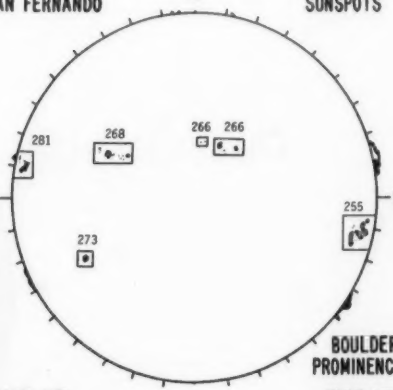
1905 UT

Sp

SAN FERNANDO

Np

SUNSPOTS



E W

2000 UT

Sp

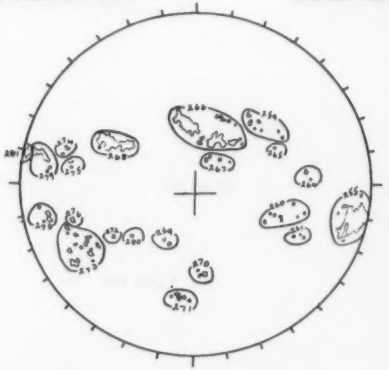
BOULDER PROMINENCES

1905 UT

HALE OBSERVATORIES

Np

CALCIUM REPORT



E W

1950 UT

Sp

V	POOR	JA
55-	5600	4.0
59-	0400	3.0
60-	0300	3.0
61-	0200	2.5
64-	0100	2.5
65-	0100	2.5
66-	2800	4.0
67-	0200	3.0
68-	1800	4.0
69-	0100	2.5
70-	0200	3.0
71-	0200	3.0
72-	0100	3.0
73-	1200	3.5
74-	0100	3.0
75-	0200	3.0
76-	0100	3.5
78-	0400	3.0
79-	1000	3.0
80-	0100	3.0
81-	0500	4.0

NOSC LA POSTA

Np

2.0 CM

NO DATA

E W

SCHEDULE

---- UT

Sp

Ant. Temp. Unit 100° K

NOSC LA POSTA

Np

8.6 MM

NO DATA

E W

SCHEDULE

---- UT

Sp

Ant. Temp. Unit 100° K

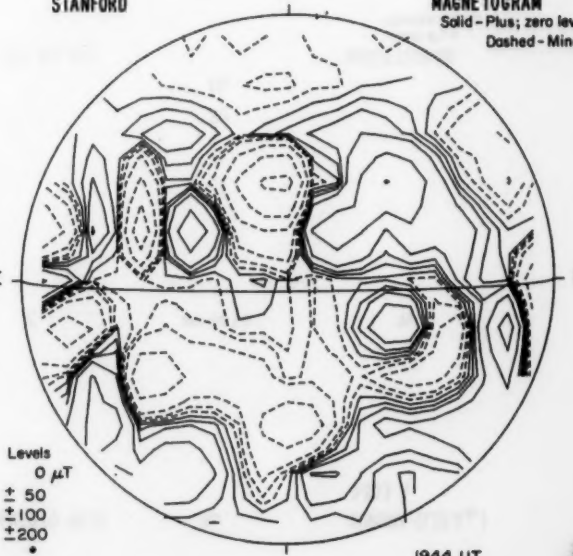
STANFORD

Np

MAGNETOGRAM

Solid - Plus; zero level

Dashed - Minus



Levels

0 μT

± 50

±100

±200

E W

1944 UT

Sp

91

Nov 80

NOVEMBER 17, 1980 (P = 20.82, B_o = 2.56, L_o = 27.40)

SACRAMENTO PEAK

Np

CORONA (1.15 $R_\odot$)
5303 Å

E

NO DATA

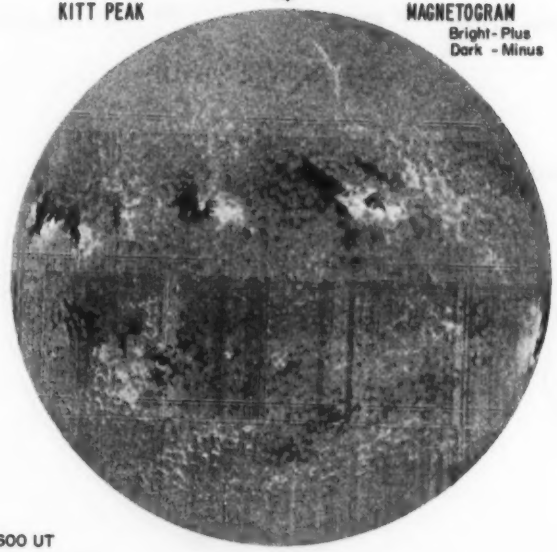
W

Sp

KITT PEAK

Np

MAGNETOGRAM
Bright - Plus
Dark - Minus



E

W

1600 UT

Sp

Np

MT. WILSON

MAGNETOGRAM
Solid - Plus
Dotted - Minus

DELTAY =
DELTAX =

E

NO DATA

W

Levels
+ 5
+ + 10
+ + + 20
+ + + + 40
+ + + + + 60

Sp

17

Np

Np

Np

17

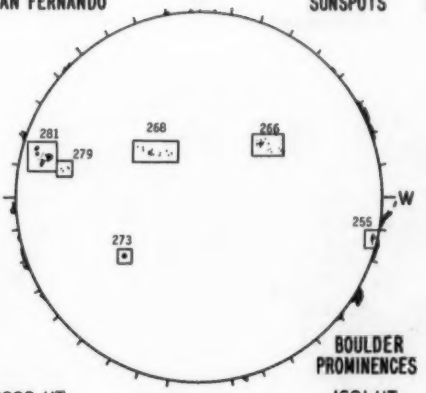
BOULDER Np Hα

E W

1601 UT

Sp

SAN FERNANDO Np SUNSPOTS



E W

2000 UT

Sp

HALE OBSERVATORIES Np CALCIUM REPORT

NO DATA

E W

BOULDER PROMINENCES

1601 UT

Sp

NOSC LA POSTA Np 2.0 CM

NO DATA

E EQUIPMENT W

---- UT

Sp Ant. Temp. Unit 100° K

NOSC LA POSTA Np 8.6 MM

NO DATA

E EQUIPMENT W

---- UT

Sp Ant. Temp. Unit 100° K

STANFORD Np MAGNETOGRAM

Solid - Plus; zero level

Dashed - Minus

E NO DATA W

Levels

0 μT

± 50

±100

±200

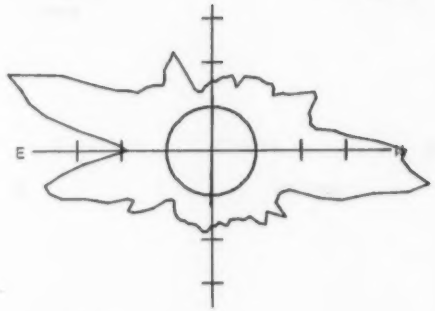
Sp

93

Nov 80

NOVEMBER 18, 1980 (P = 20.52, B_o = 2.44, L_o = 14.21)

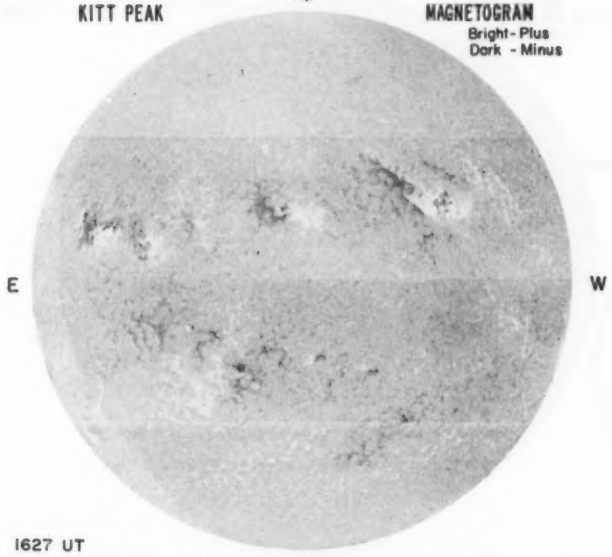
SACRAMENTO PEAK Np CORONA (1.15 $R_\odot$)
5303 Å



1731 UT

Sp

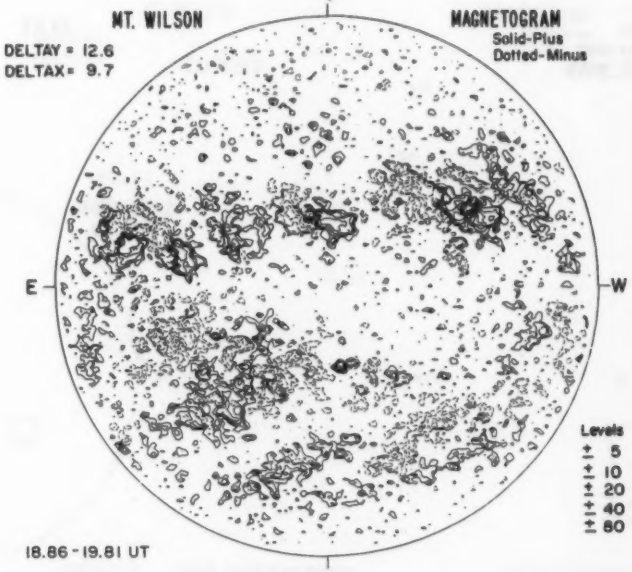
KITT PEAK Np MAGNETOGRAM
Bright - Plus
Dark - Minus



1627 UT

Sp

MT. WILSON Np MAGNETOGRAM
Solid-Plus
Dotted-Minus
DELTAY = 12.6
DELTAX = 9.7



18.86 - 19.81 UT

Sp

18

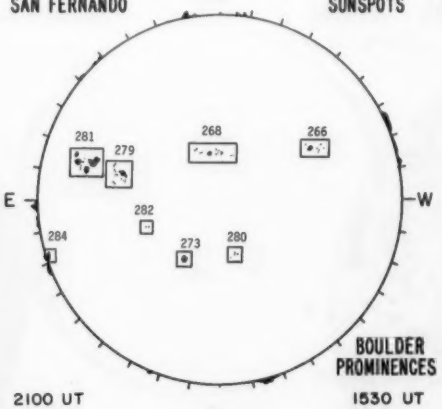
Np Np Np

BOULDER Np Hα

E W

1530 UT Sp

SAN FERNANDO Np SUNSPOTS

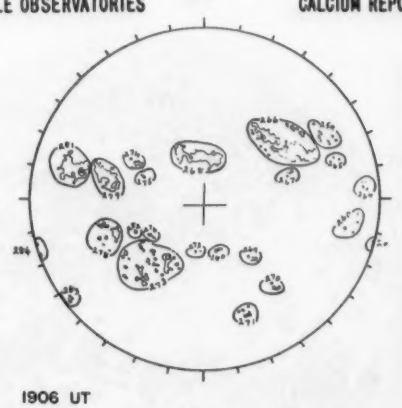


E W

2100 UT Sp

BOULDER PROMINENCES 1530 UT

HALE OBSERVATORIES Np CALCIUM REPORT

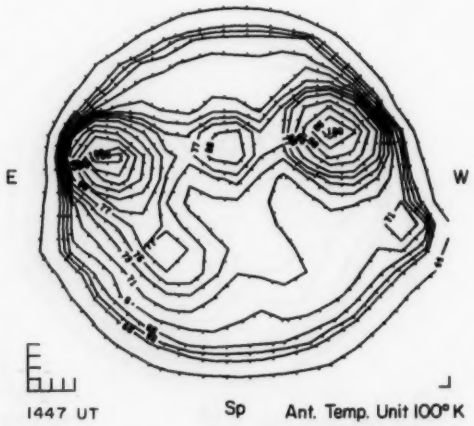


E W

1906 UT Sp

	GOOD	JA
59-	0400-	3.0
60-	0200-	2.5
64-	0200-	2.5
66-	3200-	3.5
67-	0100-	2.5
68-	2200-	3.5
69-	0200-	3.0
70-	0200-	3.0
71-	0200-	2.5
72-	0100-	2.5
73-	1800-	3.0
74-	0200-	3.0
75-	0100-	3.0
76-	0100-	3.0
78-	0700-	3.0
79-	1700-	3.5
80-	0100-	3.5
81-	2600-	4.0
82-	0100-	3.0
83-	0300-	2.5
84-	0200-	3.0

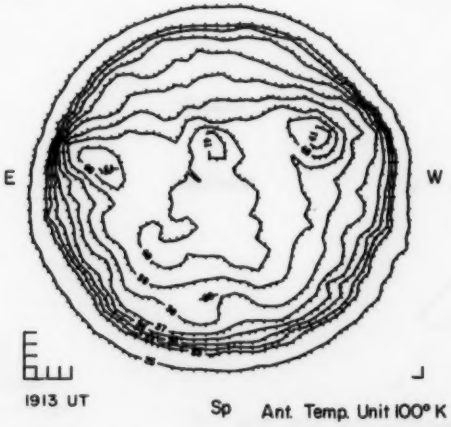
NOSC LA POSTA Np 2.0 CM



E W

1447 UT Sp Ant. Temp. Unit 100° K

NOSC LA POSTA Np 8.6 MM



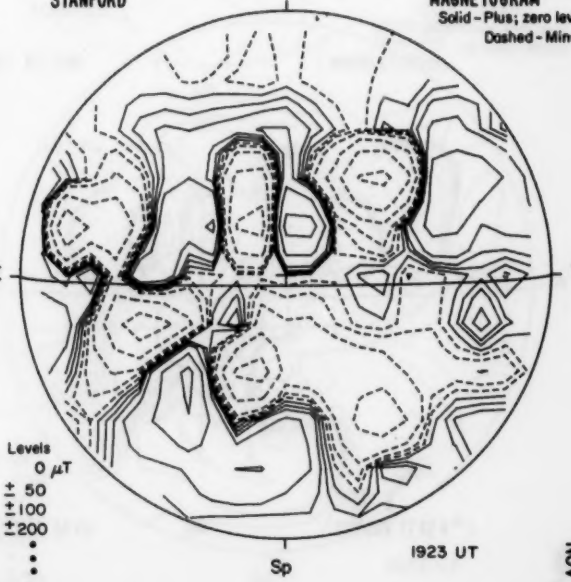
E W

1913 UT Sp Ant. Temp. Unit 100° K

STANFORD Np MAGNETOGRAM

Solid - Plus; zero level

Dashed - Minus



E W

Levels

0 μT

± 50

±100

±200

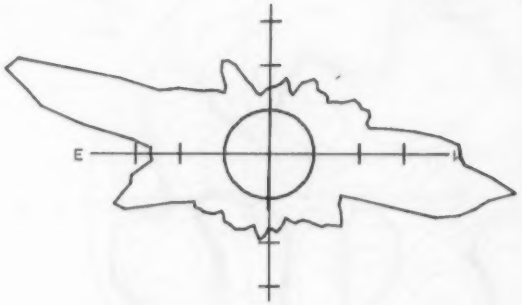
1923 UT Sp

95

Nov 80

NOVEMBER 19, 1980 (P = 20.22, B_o = 2.32, L_o = 1.03)

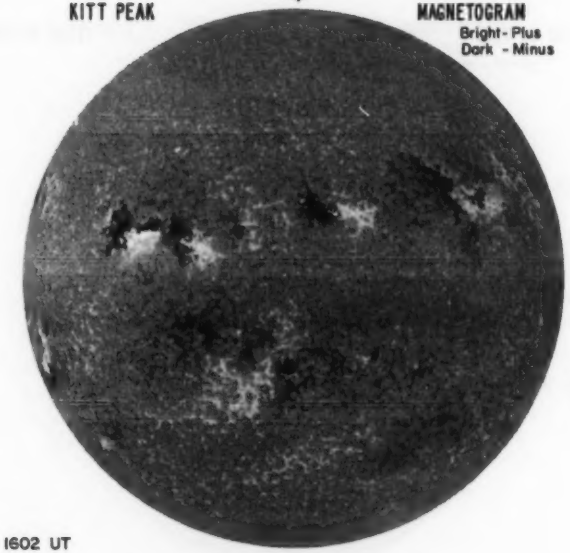
SACRAMENTO PEAK Np CORONA (1.15 $R_\odot$)
5303 Å



1750 UT

Sp

KITT PEAK Np MAGNETOGRAM
Bright - Plus
Dark - Minus

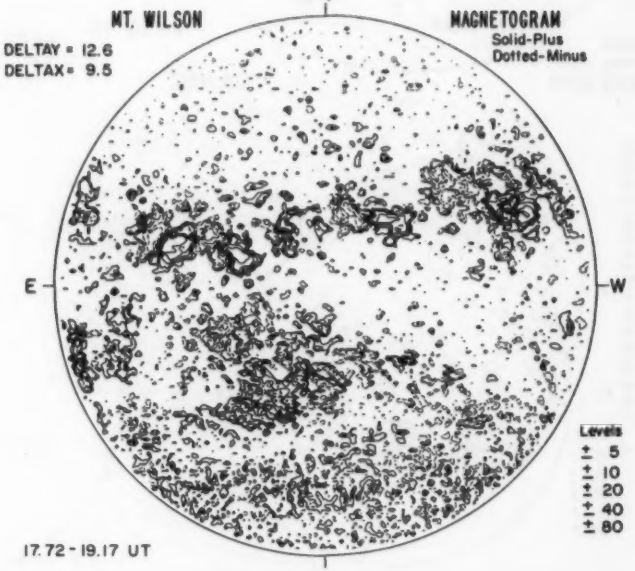


1602 UT

Sp

Np

MT. WILSON MAGNETOGRAM
Solid-Plus
Dotted-Minus
DELTAY = 12.6
DELTAX = 9.5

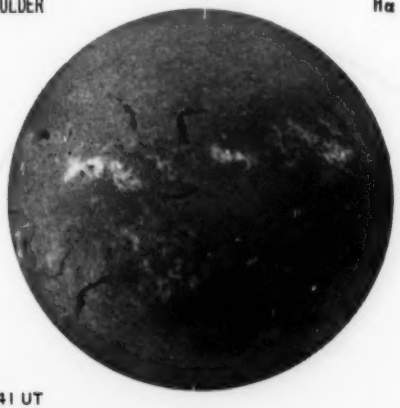


17.72 - 19.17 UT

Sp

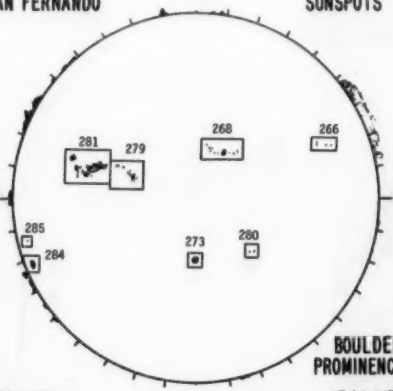
19

BOULDER Hα



1541 UT

SAN FERNANDO SUNSPOTS

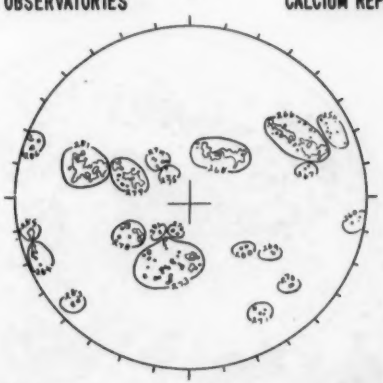


1810 UT

BOULDER PROMINENCES

1541 UT

HALE OBSERVATORIES CALCIUM REPORT

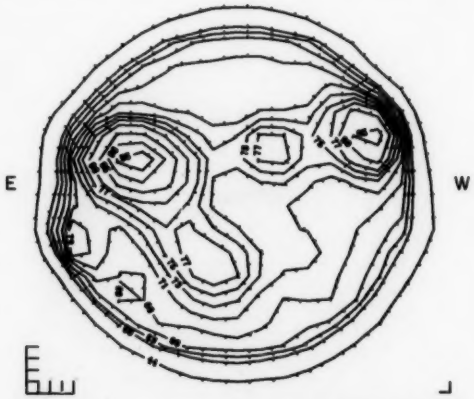


1824 UT

FAIR	JA

59- 0300-2.5
66- 3300-3.5
67- 0100-2.5
68- 2000-3.5
69- 0100-3.0
70- 0100-3.0
73- 1600-3.0
78- 0600-3.0
79- 1300-3.0
80- 0100-3.0
81- 2600-4.0
83- 0200-2.5
84- 0500-3.0
85- 0500-3.0

NOSC LA POSTA 2.0 CM



1922 UT Ant. Temp. Unit 100° K

NOSC LA POSTA 8.6 MM

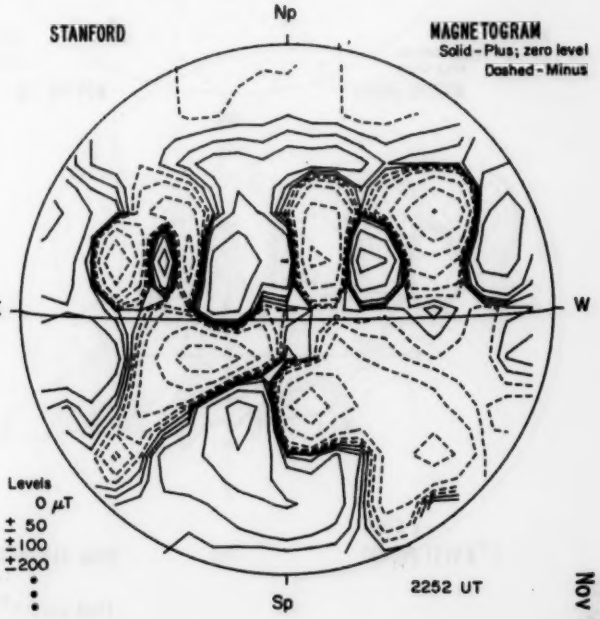
NO DATA

EQUIPMENT

---- UT Ant. Temp. Unit 100° K

STANFORD MAGNETOGRAM

Solid - Plus; zero level
Dashed - Minus



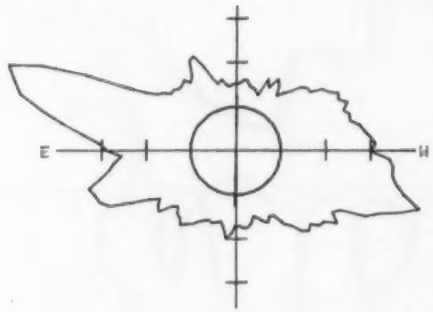
Levels
0 μT
± 50
±100
±200

2252 UT

Nov 80
97

NOVEMBER 20, 1980 (P = 19.91, B_o = 2.19, L_o = 347.85)

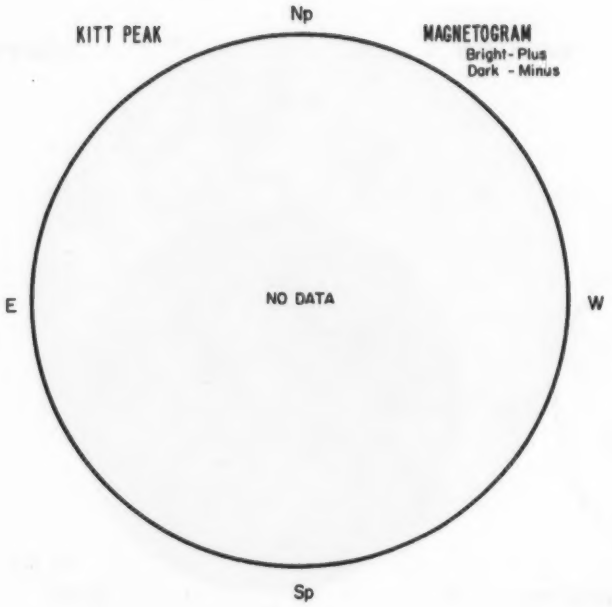
SACRAMENTO PEAK Np CORONA (1.15 $R_\odot$)
5303 Å



1731 UT

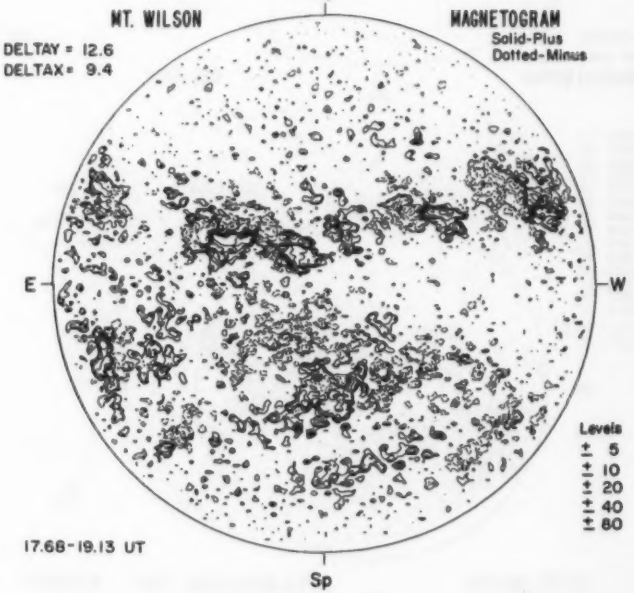
Sp

KITT PEAK Np MAGNETOGRAM
Bright - Plus
Dark - Minus



Np

MT. WILSON MAGNETOGRAM
Solid-Plus
Dotted-Minus
DELTAY = 12.6
DELTAX = 9.4



17.68-19.13 UT

20

Np

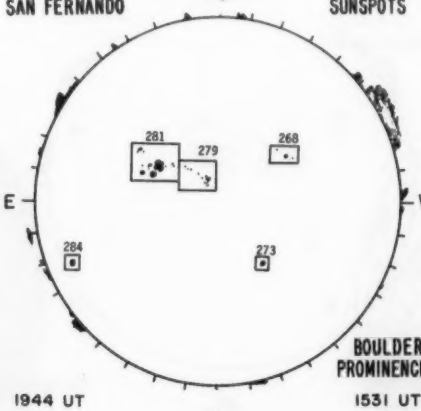
Np

Np

20

BOULDER

SAN FERNANDO



SUNSPOTS

BOULDER PROMINENCES

1531 UT

HALE OBSERVATORIES

CALCIUM REPORT

JA

66- 2700-3.5
68- 1800-3.5
69- 0100-2.5
70- 0100-2.5
73- 1500-3.0
74- 0300-3.0
75- 0100-3.0
76- 0100-3.0
78- 0500-3.0
79- 1900-3.5
80- 0100-3.0
81- 3300-4.0
83- 0200-2.5
84- 0600-3.0
85- 0600-3.0
87- 0200-2.5

NOSC LA POSTA Np 2.0 CM

NO DATA

E WEATHER W

---- UT Sp Ant. Temp. Unit 100° K

NOSC LA POSTA Np 8.6 MM

NO DATA

E WEATHER W

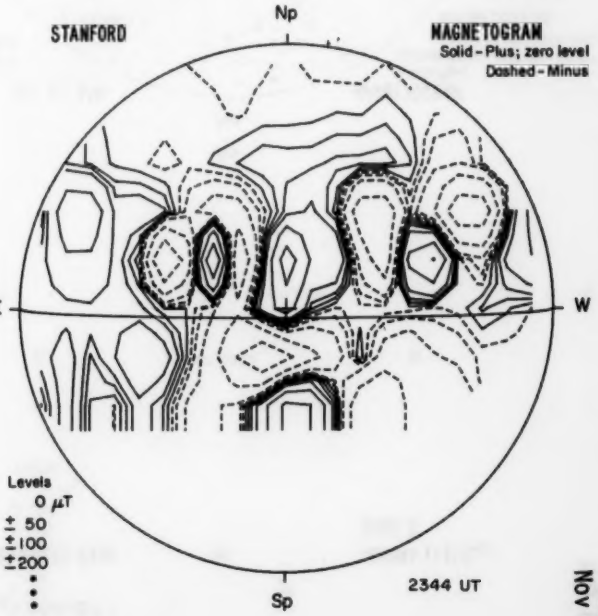
---- UT Sp Ant. Temp. Unit 100° K

STANFORD

MAGNETOGRAM

Solid - Plus; zero level

Dashed - Minus



2344 UT

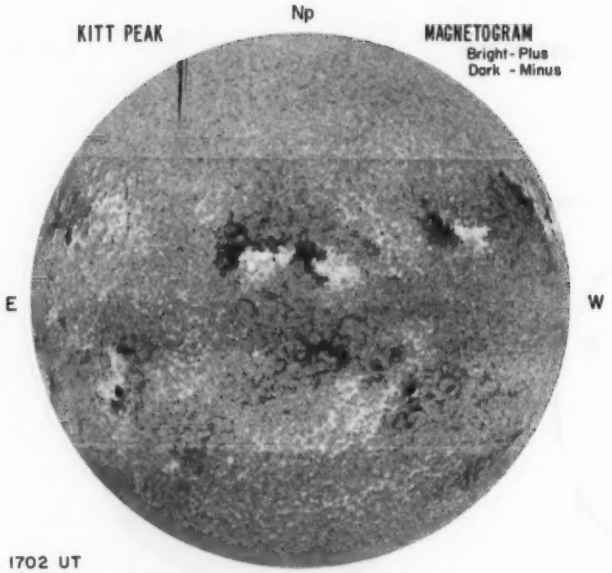
Nov 80

NOVEMBER 21, 1980 (P = 19.60, B_o = 2.07, L_o = 334.67)

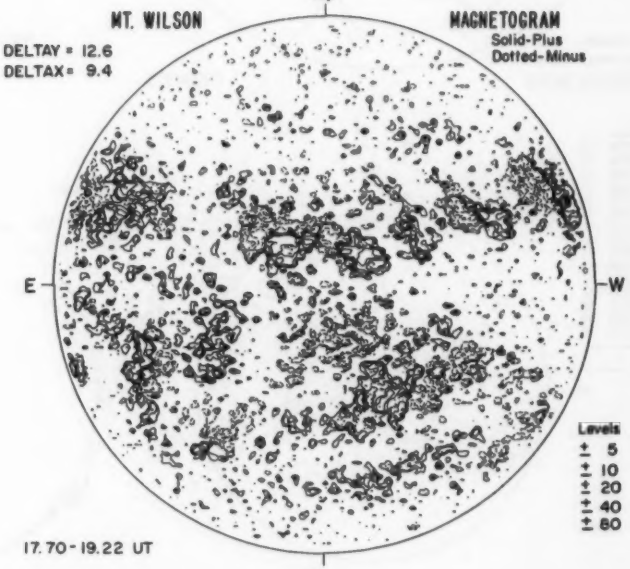
SACRAMENTO PEAK Np CORONA (1.15 $R_\odot$)
5303 Å

E NO DATA W

KITT PEAK Np MAGNETOGRAM
Bright - Plus
Dark - Minus



Sp
Np
MT. WILSON MAGNETOGRAM
Solid-Plus
Dotted-Minus
DELTAY = 12.6
DELTAX = 9.4

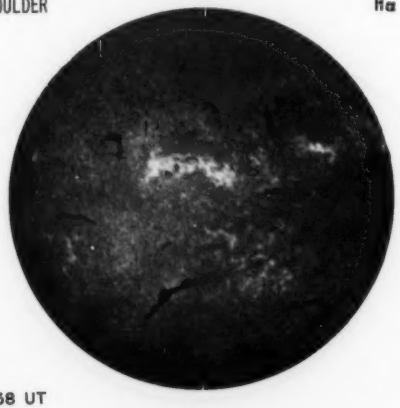


21

BOULDER Np H— SAN FERNANDO Np SUNSPOT VALE OBSERVATORIES Np

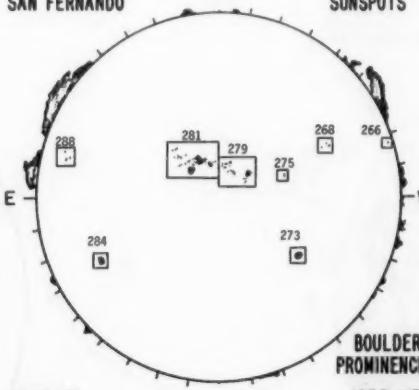
21

BOULDER Np Hα



1658 UT Sp

SAN FERNANDO Np SUNSPOTS

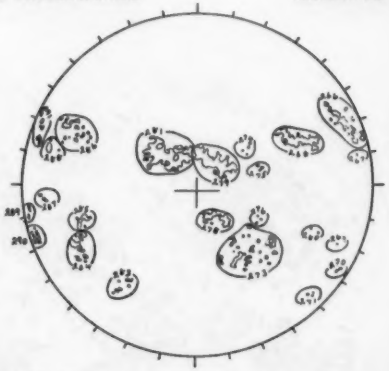


1840 UT Sp

BOULDER PROMINENCES

1658 UT

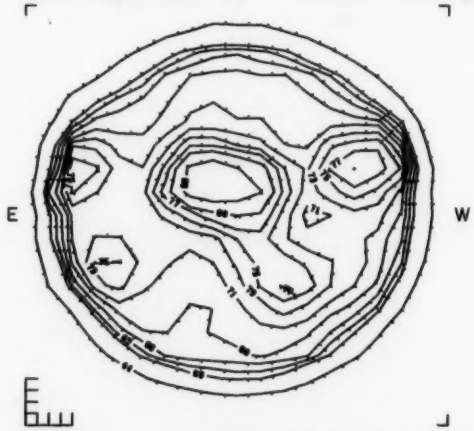
HALE OBSERVATORIES Np CALCIUM REPORT



1732 UT Sp

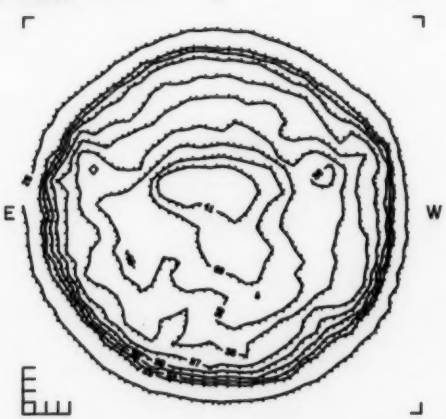
	GOOD	JA
66-	1900	3.5
68-	1700	3.5
73-	1900	3.0
74-	0200	3.0
75-	0100	3.0
76-	0100	2.5
78-	0800	3.0
79-	2100	3.5
80-	0100	2.5
81-	3200	4.0
83-	0300	3.0
84-	1000	3.0
85-	0500	3.0
86-	1100	2.5
87-	0100	3.0
88-	0400	3.0
90-	0600	3.0
91-	0700	3.0

NOSC LA POSTA Np 2.0 CM



1654 UT Sp Ant. Temp. Unit 100° K

NOSC LA POSTA Np 8.6 MM



1724 UT Sp Ant. Temp. Unit 100° K

STANFORD Np

NO DATA

E W

Sp

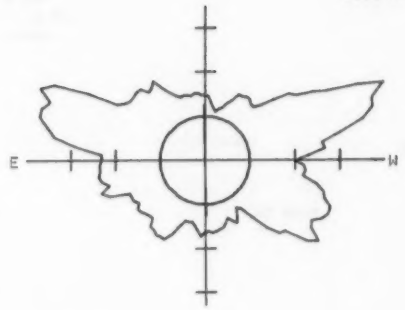
MAGNETOGRAM
Solid - Plus; zero level
Dashed - Minus

Levels
0 μT
± 50
±100
±200

101
Nov 80

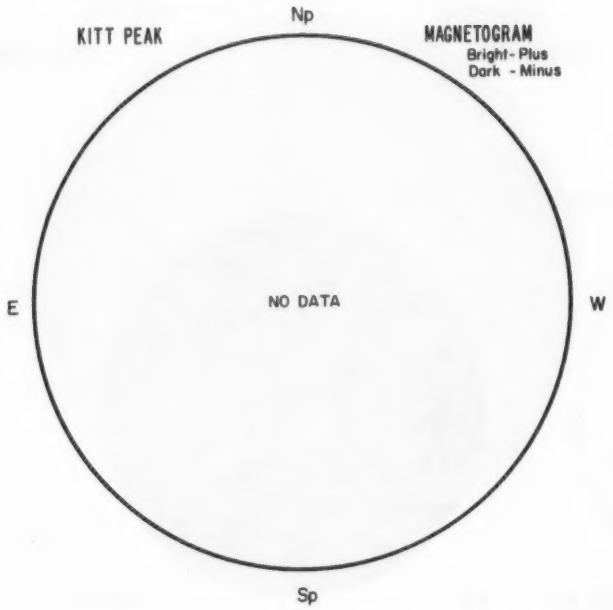
NOVEMBER 22, 1980 (P = 19.27, B_o = 1.95, L_o = 321.49)

SACRAMENTO PEAK Np CORONA (1.15 $R_\odot$)
5303 Å

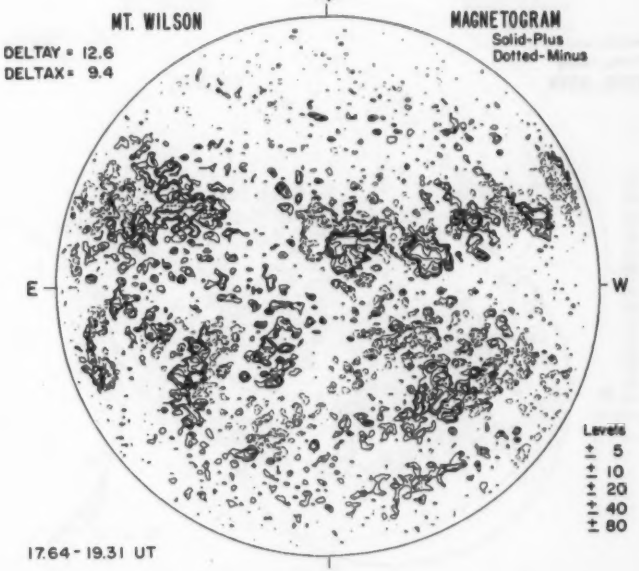


1520 UT

KITT PEAK Np MAGNETOGRAM
Bright - Plus
Dark - Minus



Sp
Np MT. WILSON MAGNETOGRAM
Solid-Plus
Dotted-Minus
DELTAY = 12.6
DELTAX = 9.4



17.64 - 19.31 UT
Sp

Np Np

Sp

22

Np

Hα

NO DATA

E W

Sp

SAN FERNANDO

Np

288 281 279 274 268 275 284 273

E W

1745 UT

Sp

SUNSPOTS

BOULDER PROMINENCES

1614 UT

HALE OBSERVATORIES

Np

E W

2254 UT

Sp

CALCIUM REPORT

FAIR	JA

66- 0500-2.5
68- 1600-3.0
73- 1300-2.5
74- 0700-3.0
75- 0100-3.0
78- 0600-2.5
79- 2400-3.5
81- 2900-3.5
84- 0700-3.5
85- 0300-3.0
86- 0900-3.0
88- 0900-3.0
89- 0200-2.5
90- 0300-3.0
91- 0300-2.5
92- 0300-2.5

STANFORD

Np

MAGNETOGRAM

Solid - Plus; zero level
Dashed - Minus

NOSC LA POSTA Np 2.0 CM

NO DATA

E SCHEDULE W

---- UT Sp Ant. Temp. Unit 100° K

NOSC LA POSTA Np 8.6 MM

NO DATA

E SCHEDULE W

---- UT Sp Ant. Temp. Unit 100° K

NO DATA

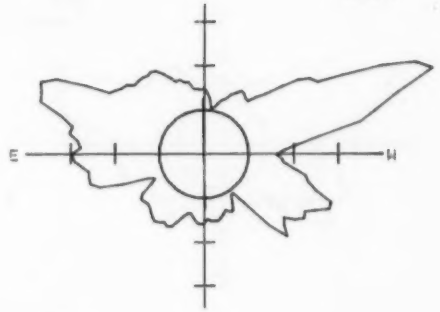
E W

Levels
0 μT
± 50
±100
±200

Sp

NOVEMBER 23, 1980 (P = 18.94, B_o = 1.83, L_o = 308.31)

SACRAMENTO PEAK Np CORONA (1.15 $R_\odot$)
5303 Å

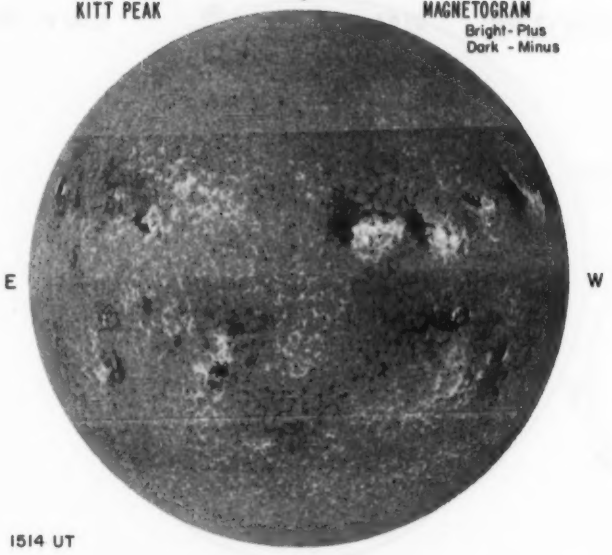


1518 UT

Sp

Np

KITT PEAK MAGNETOGRAM
Bright - Plus
Dark - Minus



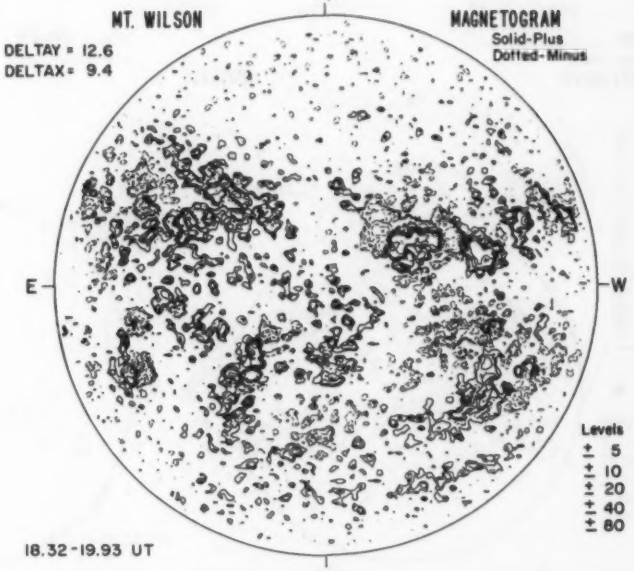
1514 UT

Sp

Np

MT. WILSON MAGNETOGRAM
Solid-Plus
Dotted-Minus

DELTAY = 12.6
DELTAX = 9.4



18.32-19.93 UT

Sp

23

Np

Hα

NO DATA

E W

Sp

SAN FERNANDO

Np

292 288 281 279 274 269 278 273 285 284

E W

1635 UT

Sp

SUNSPOTS

BOULDER PROMINENCES

NO DATA

HALE OBSERVATORIES

Np

E W

2234 UT

Sp

CALCIUM REPORT

V POOR	JA

68- 1100-3.0
73- 0900-2.5
74- 0700-3.0
78- 1000-3.0
79- 2500-3.5
81- 2400-3.5
83- 0200-2.5
84- 1000-3.0
85- 0300-3.0
86- 0800-3.0
87- 0100-2.5
88- 1000-3.0
89- 0200-2.5
90- 0500-3.0
91- 0300-2.5
92- 0200-2.5

NOSC LA POSTA Np 2.0 CM

NO DATA

E SCHEDULE W

---- UT Sp Ant. Temp. Unit 100° K

NOSC LA POSTA Np 8.6 MM

NO DATA

E SCHEDULE W

---- UT Sp Ant. Temp. Unit 100° K

STANFORD

Np

MAGNETOGRAM

Solid - Plus; zero level

Dashed - Minus

E W

Levels

0 μT

± 50

±100

±200

Sp

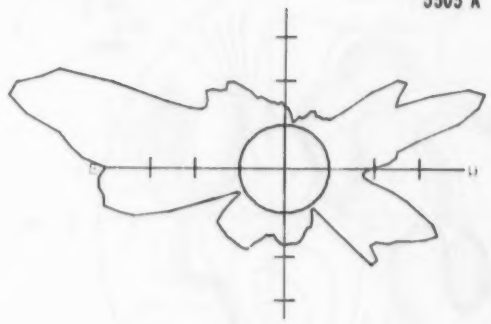
2335 UT

105

Nov 80

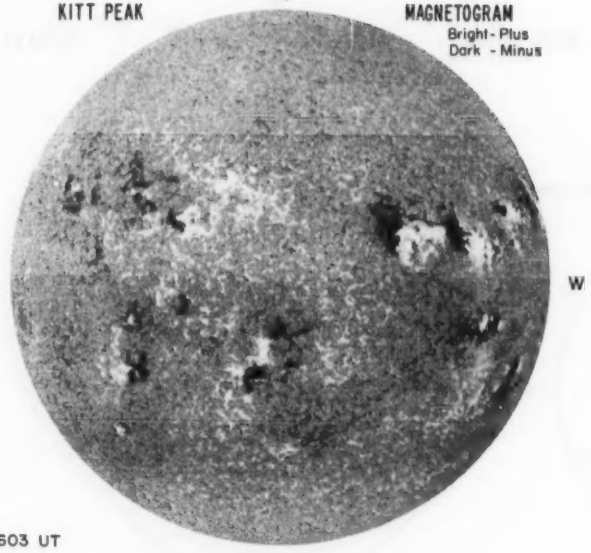
NOVEMBER 24, 1980 (P = 18.60, B_o = 1.70, L_o = 295.12)

SACRAMENTO PEAK Np CORONA (1.15 $R_\odot$)
5303 Å



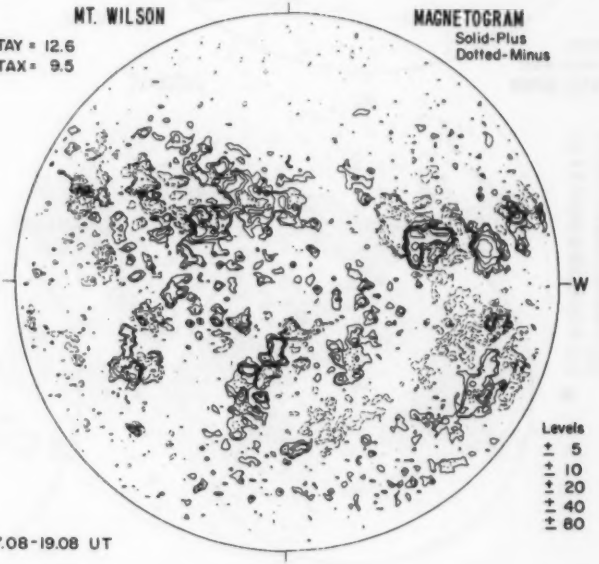
1601 UT

KITT PEAK Np MAGNETOGRAM
Bright - Plus
Dark - Minus



1603 UT Sp

Sp
Np MT. WILSON MAGNETOGRAM
Solid-Plus
Dotted-Minus
DELTAY = 12.6
DELTAX = 9.5



17.08-19.08 UT Sp

24

Np Np Np

Np

Hα

NO DATA

E W

Sp

SAN FERNANDO

Np

SUNSPOTS

291 288 281 279 274 278 273 284

E W

1728 UT

Sp

BOULDER PROMINENCES

NO DATA

HALE OBSERVATORIES

Np

CALCIUM REPORT

E W

1845 UT

Sp

V POOR	JA

68- 0600-2.5
74- 0500-3.5
78- 0400-3.0
79- 2100-3.0
81- 2200-4.0
84- 0500-3.5
85- 0300-3.0
86- 0500-3.0
87- 0300-2.5
88- 0700-3.0
89- 0200-2.5
90- 0300-3.0
91- 0500-3.0
92- 0500-3.0
93- 0100-3.0

NOSC LA POSTA

Np

2.0 CM

E W

1657 UT

Sp

Ant. Temp. Unit 100° K

NOSC LA POSTA

Np

8.6 MM

E W

1730 UT

Sp

Ant. Temp. Unit 100° K

STANFORD

Np

MAGNETOGRAM

Solid - Plus; zero level

Dashed - Minus

E W

Levels

0 μT

± 50

±100

±200

2211 UT

Sp

107

Nov 80

NOVEMBER 25, 1980 (P=18.26, B_o=1.58, L_o=281.94)

SACRAMENTO PEAK Np CORONA (1.15 $R_\odot$)
5303 Å

E NO DATA W

Sp

Np

KITT PEAK MAGNETOGRAM
Bright - Plus
Dark - Minus

E W

1625 UT

Sp

MT. WILSON MAGNETOGRAM
Solid-Plus
Dotted-Minus

DELTAY =
DELTAX =

E NO DATA W

Levels
± 5
± ± 10
± ± ± 20
± ± ± ± 40
± ± 60

Sp

25

BOULDER

Np

Hα

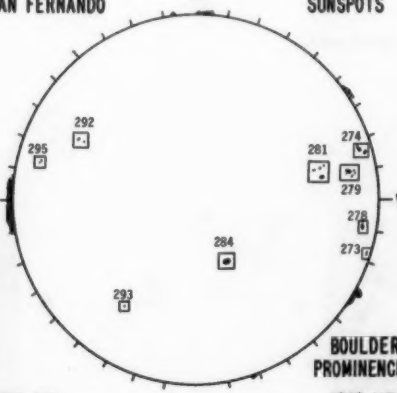
E W

1812 UT

Sp

SAN FERNANDO

Np



E W

1935 UT

Sp

SUNSPOTS

BOULDER PROMINENCES

1812 UT

HALE OBSERVATORIES

Np

NO DATA

E W

Sp

CALCIUM REPORT

NOSC LA POSTA

Np

2.0 CM

NO DATA

E W

WEATHER

---- UT

Sp

Ant. Temp. Unit 100° K

NOSC LA POSTA

Np

8.6 MM

NO DATA

E W

WEATHER

---- UT

Sp

Ant. Temp. Unit 100° K

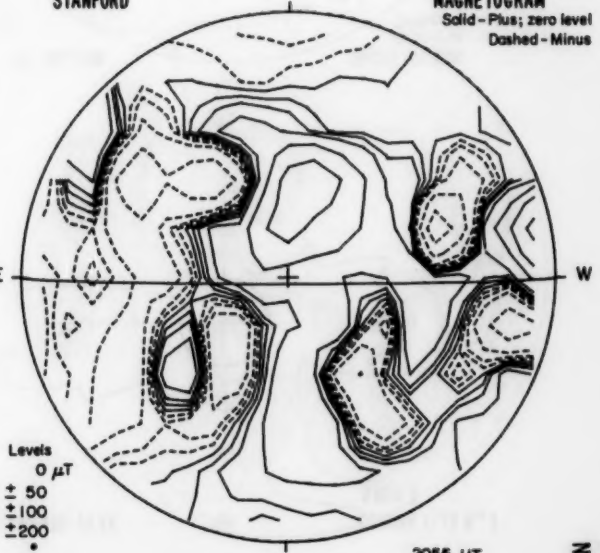
STANFORD

Np

MAGNETOGRAM

Solid - Plus; zero level

Dashed - Minus



E W

Levels

0 μT

± 50

±100

±200

2055 UT

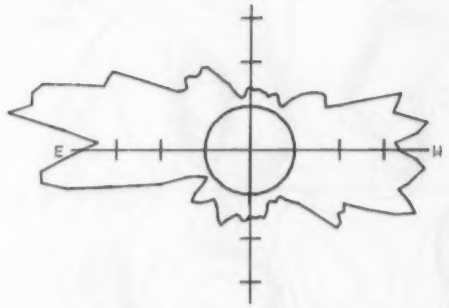
Sp

109

Nov 80

NOVEMBER 26, 1980 (P = 17.91, B_o = 1.45, L_o = 268.76)

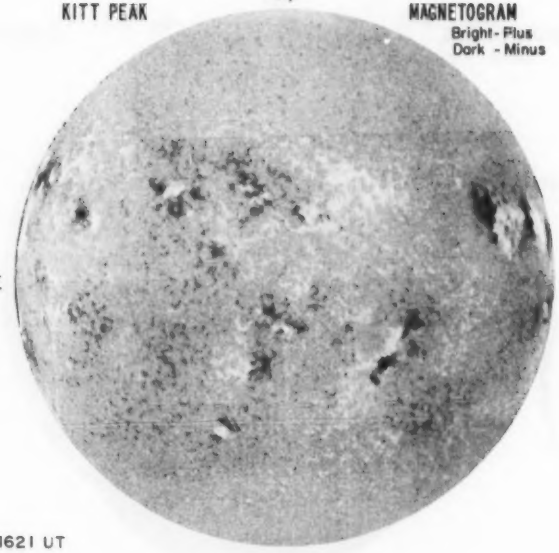
SACRAMENTO PEAK Np CORONA (1.15 $R_\odot$)
5303 Å



2146 UT

Sp

KITT PEAK Np MAGNETOGRAM
Bright - Plus
Dark - Minus



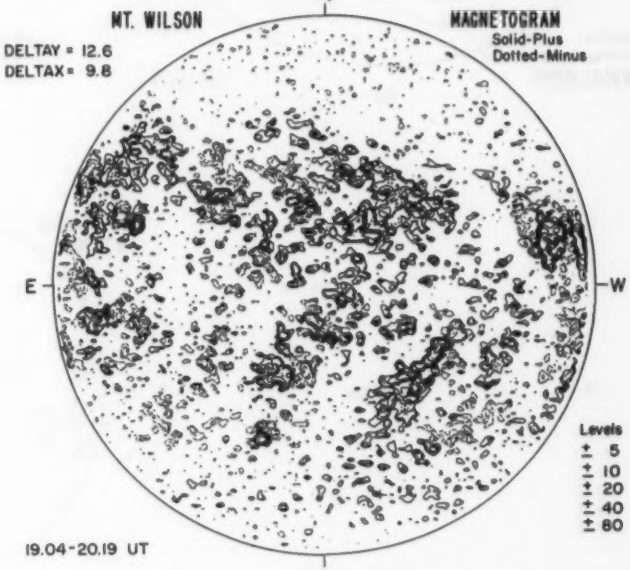
1621 UT

Sp

Np

MT. WILSON MAGNETOGRAM
Solid-Plus
Dotted-Minus

DELTAY = 12.6
DELTAX = 9.8

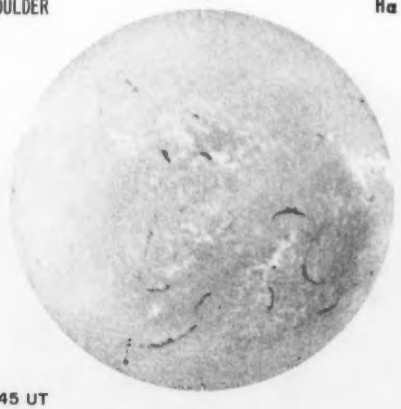


19.04-20.19 UT

Sp

BOULDER

Np



E V E

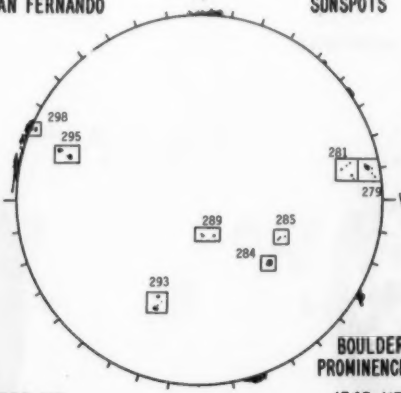
1545 UT

Sp

Hα

SAN FERNANDO

Np



W E

1820 UT

Sp

SUNSPOTS HALE OBSERVATORIES

Np

BOULDER PROMINENCES

1545 UT

Sp

CALCIUM REPORT

Np

NO DATA

W

Sp

NOSC LA POSTA

Np

2.0 CM

NO DATA

E

WEATHER

W

---- UT

Sp

Ant. Temp. Unit 100° K

NOSC LA POSTA

Np

8.6 MM

NO DATA

E

WEATHER

W

---- UT

Sp

Ant. Temp. Unit 100° K

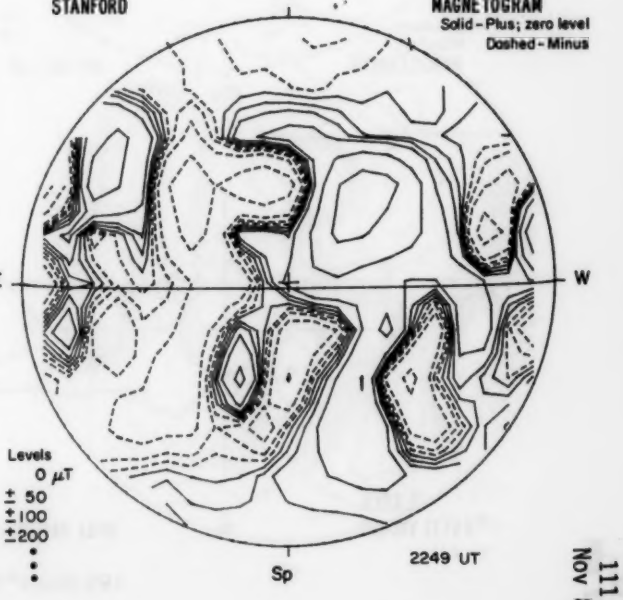
STANFORD

Np

MAGNETOGRAM

Solid - Plus; zero level

Dashed - Minus



E W

Levels

0 μT

± 50

±100

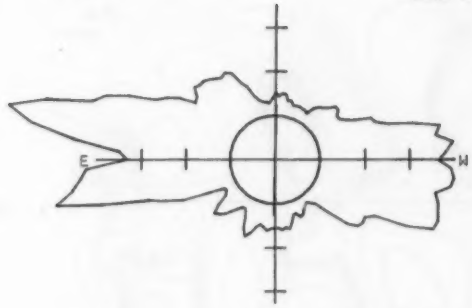
±200

2249 UT

Sp

NOVEMBER 27, 1980 (P=17.55, B_o=1.33, L_o=255.58)

SACRAMENTO PEAK Np CORONA (1.15 $R_\odot$)
5303 Å

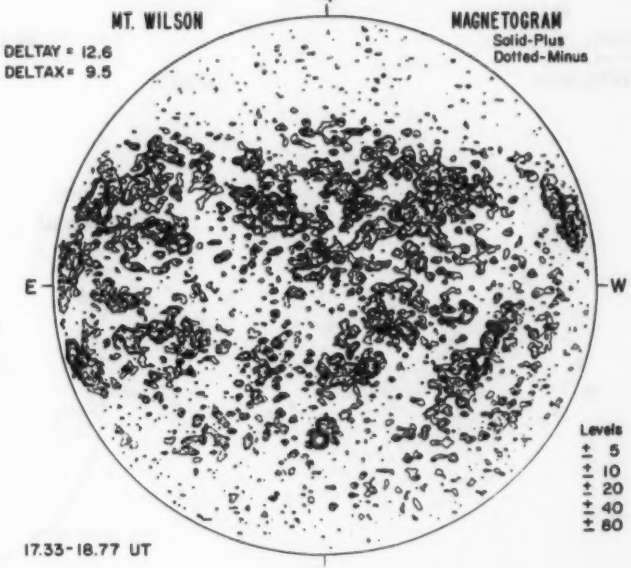


1552 UT

KITT PEAK Np MAGNETOGRAM
Bright - Plus
Dark - Minus

1518 UT

Sp
Np MT. WILSON MAGNETOGRAM
Solid-Plus
Dotted-Minus
DELTAY = 12.6
DELTAX = 9.5



17.33-18.77 UT

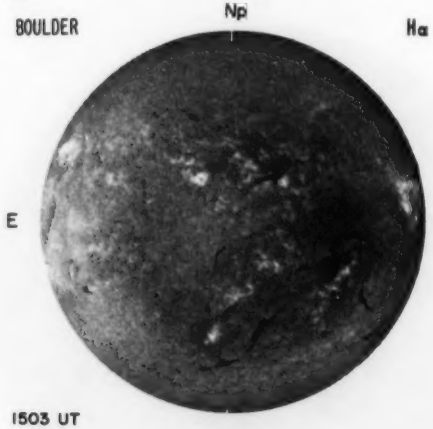
Sp

27

Np

27

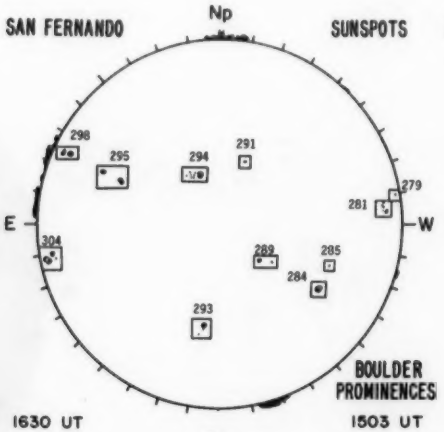
BOULDER



1503 UT

Hα

SAN FERNANDO



1630 UT

SUNSPOTS

HALE OBSERVATORIES

Np

NO DATA

E W

Sp

CALCIUM REPORT

BOULDER PROMINENCES

1503 UT

NOSC LA POSTA Np 2.0 CM

NO DATA

E WEATHER W

---- UT Sp Ant. Temp. Unit 100° K

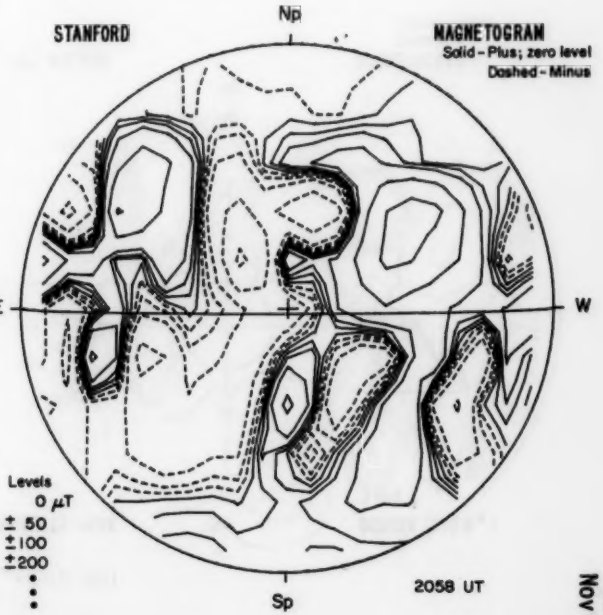
NOSC LA POSTA Np 8.6 MM

NO DATA

E WEATHER W

---- UT Sp Ant. Temp. Unit 100° K

STANFORD



MAGNETOGRAM

Solid - Plus; zero level

Dashed - Minus

2058 UT

113

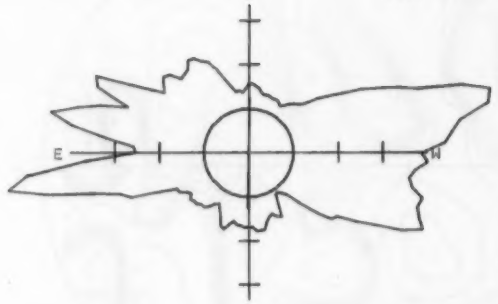
Nov 80

NOVEMBER 28, 1980 (P = 17.18, B_o = 1.20, L_o = 242.40)

SACRAMENTO PEAK

Np

CORONA (1.15 $R_\odot$)
5303 Å



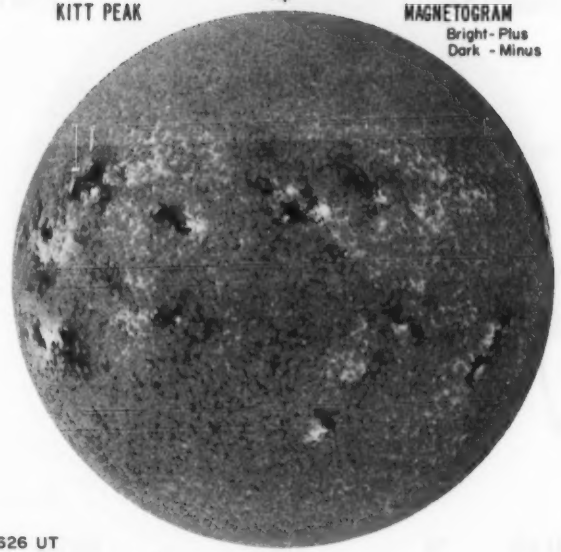
1811 UT

Sp

Np

KITT PEAK

MAGNETOGRAM
Bright - Plus
Dark - Minus



E W

1626 UT

Sp

MT. WILSON

DELTAY =
DELTAX =

MAGNETOGRAM
Solid-Plus
Dotted-Minus

E NO DATA W

Levels
± 5
± 10
± 20
± 40
± 80

Sp

28

Np

Np

Sp

Sp

28

Np

Hα

E

NO DATA

W

Sp

Np

SAN FERNANDO

298 298 295 294 291 301 281 304 289 284 293

E W E

1750 UT

Sp

Np

SUNSPOTS

BOULDER PROMINENCES

1631 UT

Sp

Np

HALE OBSERVATORIES

NO DATA

W

Sp

Np

CALCIUM REPORT

NO DATA

W

Sp

NOSC LA POSTA

Np

2.0 CM

NO DATA

E

WEATHER

W

---- UT

Sp

Ant. Temp. Unit 100° K

NOSC LA POSTA

Np

8.6 MM

NO DATA

E

WEATHER

W

---- UT

Sp

Ant. Temp. Unit 100° K

STANFORD

Np

MAGNETOGRAM

Solid - Plus; zero level

Dashed - Minus

E W

Levels

0 μT

± 50

±100

±200

1751 UT

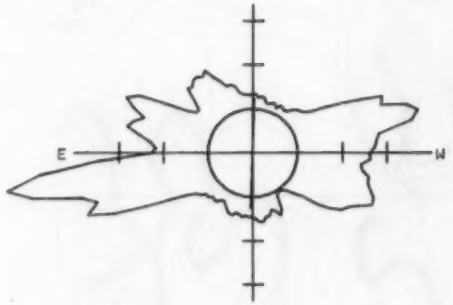
Sp

115

Nov 80

NOVEMBER 29, 1980 (P = 16.81, B_o = 1.08, L_o = 229.22)

SACRAMENTO PEAK Np CORONA (1.15 $R_\odot$)
5303 Å

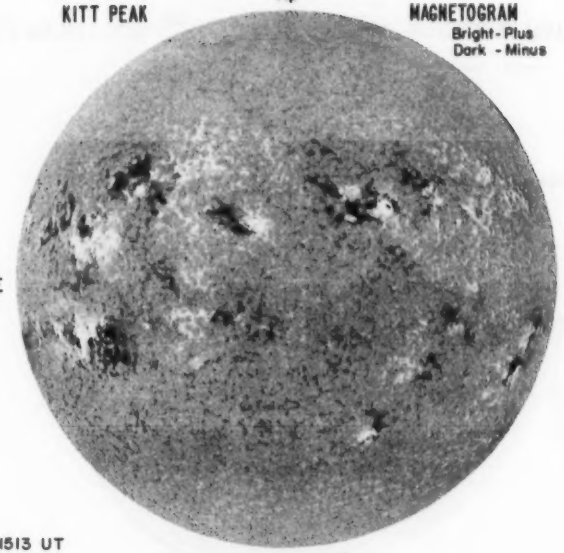


1515 UT

Sp

Np

KITT PEAK Np MAGNETOGRAM
Bright - Plus
Dark - Minus



E W

1513 UT

Sp

MT. WILSON MAGNETOGRAM
Solid-Plus
Dotted-Minus

DELTAY =
DELTAX =

E NO DATA W

Levels
± 5
± 10
± 20
± 40
± 80

Sp

29

29

Np

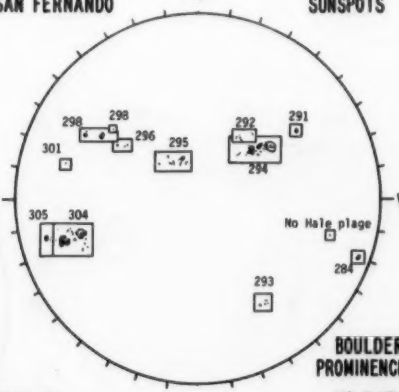
Hα

E NO DATA W

Sp

SAN FERNANDO

Np



E W E

1705 UT

Sp

SUNSPOTS

BOULDER PROMINENCES

NO DATA

HALE OBSERVATORIES

Np

NO DATA

E W

Sp

CALCIUM REPORT

Np

NO DATA

E W

Sp

STANFORD

Np

MAGNETOGRAM

Solid - Plus; zero level

Dashed - Minus

NOSC LA POSTA Np 2.0 CM

NO DATA

E SCHEDULE W

---- UT

Sp

Ant. Temp. Unit 100° K

NOSC LA POSTA Np 8.6 MM

NO DATA

E SCHEDULE W

---- UT

Sp

Ant. Temp. Unit 100° K

Levels

0 μT

± 50

±100

±200

•

•

•

Sp

117

Nov 80

NOVEMBER 30, 1980 (P = 16.44, B_o = 0.95, L_o = 216.05)

SACRAMENTO PEAK Np CORONA (1.15 $R_\odot$)
5303 Å

E NO DATA W

Sp

Np

KITT PEAK Np MAGNETOGRAM
Bright - Plus
Dark - Minus

E NO DATA W

Sp

MT. WILSON MAGNETOGRAM
Solid - Plus
Dotted - Minus

DELTAY =
DELTAX =

E NO DATA W

Levels
± 5
± 10
± 20
± 40
± 80

Sp

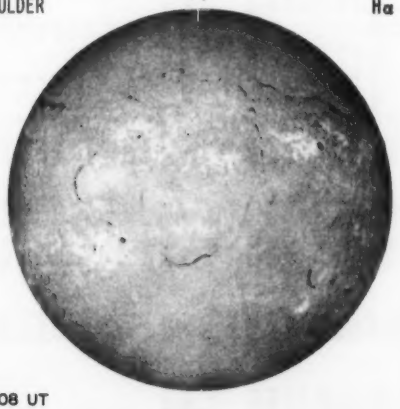
30

30

BOULDER

Np

Hα



E W

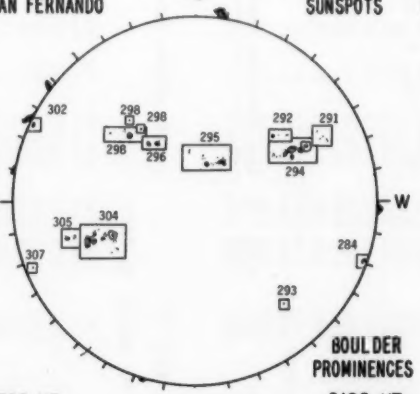
2108 UT

Sp

SAN FERNANDO

Np

SUNSPOTS



E W

1700 UT

Sp

BOULDER PROMINENCES

2108 UT

HALE OBSERVATORIES

Np

CALCIUM REPORT

E W

1947 UT

Sp

	POOR	JA
84-	0300-2.5	
88-	0400-2.5	
89-	0200-2.5	
90-	0300-2.5	
91-	0800-3.0	
92-	0400-3.0	
93-	0600-3.5	
94-	3100-3.5	
95-	1700-3.0	
96-	1300-3.0	
97-	0400-3.0	
98-	1700-3.0	
99-	0200-2.5	
00-	0500-2.5	
01-	3600-3.0	
02-	0300-2.5	
03-	0300-2.5	
04-	4100-4.0	
05-	0700-3.0	
07-	1100-2.5	
08-	0200-2.5	

STANFORD

Np

MAGNETOGRAM

Solid - Plus; zero level

Dashed - Minus

NOSC LA POSTA

Np

2.0 CM

NO DATA

E SCHEDULE W

---- UT

Sp

Ant. Temp. Unit 100° K

NOSC LA POSTA

Np

8.6 MM

NO DATA

E SCHEDULE W

---- UT

Sp

Ant. Temp. Unit 100° K

E NO DATA W

Levels

0 μT

± 50

±100

±200

Sp

119

Nov 80

REGIONS OF SOLAR ACTIVITY

NOVEMBER 1980

HALE REGION 17230 CMP DATE 1.8

				CALCIUM PLAGE DATA					SUNSPOT DATA								
YR	MO	DA	HL NO.	LAT	CMD	L	AREA	INT	MW NO.	LAT	CMD	L	MAG.	H	STA	AREA	CNT	CLASS
80	10	26	17230	N26	E85	224	300	2.0										
80	10	27	17230	N26	E70	226	400	2.0		N29	E78				P	10	2	AXX
80	10	29	17230	N27	E45	224	200	2.0										
80	10	30	17230	N27	E31	225	500	2.5		N30	E39				P	40	5	CAO
80	10	31	17230	N27	E28	214	500	2.5		N31	E29				H	30	2	CAO
80	11	1	17230	N26	W02	227	200	2.5										
80	11	2	17230	N26	W13	227	300	2.5										
80	11	3	17230	N26	W24	225	200	2.5										
80	11	4	17230	N26	W38	224	100	2.5										
80	11	5	17230	N26	W48	222	200	2.0		N31	W38				P	20	3	CSO
80	11	6	17230	N27	W65	224	100	2.5										

HALE REGION 17239 CMP DATE 1.8

				CALCIUM PLAGE DATA					SUNSPOT DATA								
YR	MO	DA	HL NO.	LAT	CMD	L	AREA	INT	MW NO.	LAT	CMD	L	MAG.	H	STA	AREA	CNT	CLASS
80	10	29	17239	N18	E43	226	200	1.5										
80	10	30	17239	N17	E30	226	200	2.0		N16	E24				H	90	7	DAO
80	10	31	17239	N18	E15	227	300	1.5										

HALE REGION 17233 CMP DATE 2.4

				CALCIUM PLAGE DATA					SUNSPOT DATA								
YR	MO	DA	HL NO.	LAT	CMD	L	AREA	INT	MW NO.	LAT	CMD	L	MAG.	H	STA	AREA	CNT	CLASS
80	10	27	17233	S10	E74	222	400	2.5										
80	10	29	17233	S10	E48	221	400	2.0										
80	10	30	17233	S10	E35	221	700	2.5										
80	10	31	17233	S09	E23	219	900	2.5										
80	11	1	17233	S09	E06	219	500	3.0										
80	11	2	17233	S09	W05	219	400	3.0										
80	11	3	17233	S11	W20	221	500	3.0										
80	11	4	17233	S11	W34	220	300	3.0										
80	11	5	17233	S09	W44	218	400	3.0										
80	11	6	17233	S10	W60	219	200	2.5										
80	11	7	17233	S09	W74	220	100	2.0										

HALE REGION 17237 CMP DATE 3.0 NORTH PART OF REGION 17177 ROTATION 2

				CALCIUM PLAGE DATA					SUNSPOT DATA								
YR	MO	DA	HL NO.	LAT	CMD	L	AREA	INT	MW NO.	LAT	CMD	L	MAG.	H	STA	AREA	CNT	CLASS
80	10	29	17237	N19	E60	209	500	2.5	21857	N20	E57	211	(AP)	3	B	70	3	CSO
80	10	30	17237	N18	E47	209	1400	3.0	21857	N18	E46	209	(B)	3	H	10	2	AXX
80	10	31	17237	N18	E34	208	1200	3.0		N20	E31				H		2	AXX
80	11	1	17237	N18	E15	210	600	3.0	21867	N19	E20	209	(BP)	2	H	10	3	BXO
80	11	2	17237	N18	E03	211	500	3.0	21867	N18	E08	208	(B)	3	H	10	4	BXO
80	11	3	17237	N18	W07	208	300	3.0	21867	N18	W04	207	(AF)	3	H	10	3	AXX
80	11	4	17237	N18	W23	209	400	3.0										
80	11	5	17237	N18	W33	207	400	3.0										
80	11	6	17237	N17	W48	207	100	2.5										
80	11	7	17237	N17	W62	208	300	2.5		N16	W64				M	10	1	AXX
80	11	8	17237	N17	W72	207	300	2.5	21883	N14	W73	210	(AP)	2	L		1	HRX

REGIONS OF SOLAR ACTIVITY

NOVEMBER 1980

HALE REGION 17235 CMP DATE 3.4

			CALCIUM PLAGE DATA						SUNSPOT DATA								
YR	MO	DA	HL NO.	LAT	CMD	L	AREA	INT	MW NO.	LAT	CMD	L	MAG.	H	STA	AREA	CNT	CLASS
80	10	29	17235	N29	E60	209	700	3.5	21856	N30	E54	214	(BP)	3	B	100	10	DSI
80	10	30	17235	N28	E47	209	1300	3.0	21856	N29	E41	214	(BP)	4	H	50	7	CKO
80	10	31	17235	N29	E36	206	1400	2.5	21856	N30	E27	213	(AP)	4	H	30	2	CAO
80	11	1	17235	N28	E18	207	1100	3.5	21856	N30	E15	214	(AP)	4	H	30	2	HSX
80	11	1	17235	N28	E18	207	1100	3.5	21866	N25	E23	206	(AP)	1	H	440	25	EKI
80	11	2	17235	N28	E08	206	700	3.5	21856	N30	E04	212	(AP)	4	H	20	3	CSO
80	11	3	17235	N29	W09	210	700	3.5	21856	N31	W09	212	(AP)	4	H	40	4	DRO
80	11	4	17235	N29	W25	211	700	3.0	21856	N31	W21	211	(BP)	4	H	30	4	CRO
80	11	5	17235	N31	W34	208	600	3.0	21856	N30	W35	211	(AP)	3	B	10	2	AXX
80	11	6	17235	N31	W50	209	500	3.0	21856	N30	W49	212	AP	1				
80	11	7	17235	N32	W62	208	300	2.5										
80	11	8	17235	N32	W66	201	300	3.0										

HALE REGION 17234 CMP DATE 3.7 RETURN OF REGIONS 17185 AND 17178 ROTATION 2

			CALCIUM PLAGE DATA						SUNSPOT DATA								
YR	MO	DA	HL NO.	LAT	CMD	L	AREA	INT	MW NO.	LAT	CMD	L	MAG.	H	STA	AREA	CNT	CLASS
80	10	29	17234	S08	E64	205	200	1.5		S10	E65				B	10	1	AXX
80	10	30	17234	S08	E54	202	1000	2.0		S08	E51				H		1	AXX
80	10	31	17234	S08	E40	202	1100	2.0										
80	11	1	17234	S08	E23	202	800	3.0	21868	S16	E17	212	X	1				
80	11	2	17234	S08	E13	201	600	3.0										
80	11	3	17234	S08	W01	202	700	3.0										
80	11	4	17234	S08	W15	201	700	3.0										
80	11	5	17234	S07	W26	200	700	2.5										
80	11	6	17234	S07	W42	201	400	2.5										
80	11	7	17234	S07	W53	199	300	2.5										
80	11	8	17234	S08	W61	196	300	2.5										

HALE REGION 17236 CMP DATE 4.2

			CALCIUM PLAGE DATA						SUNSPOT DATA								
YR	MO	DA	HL NO.	LAT	CMD	L	AREA	INT	MW NO.	LAT	CMD	L	MAG.	H	STA	AREA	CNT	CLASS
80	10	29	17236	N27	E75	194	1000	3.0										
80	10	30	17236	N25	E63	193	1600	3.0	21860	N21	E58	197	(AP)	3	H	10	3	BXO
80	10	31	17236	N24	E50	192	2300	3.0	21860	N21	E44	196	(BP)	4	H	100	13	DAO
80	11	1	17236	N22	E29	196	2900	3.5	21860	N21	E31	198	(BY)	5	H	440	25	EKI
80	11	2	17236	N23	E17	197	2600	3.5	21860	N22	E19	197	(D)	5	H	490	23	EKI
80	11	3	17236	N23	E05	196	2600	3.5	21860	N22	E07	196	(BY)	5	H	520	27	EKI
80	11	4	17236	N23	W10	196	2900	3.5	21860	N22	W06	196	(B)	5	H	550	35	EKI
80	11	5	17236	N23	W22	196	3100	3.5	21860	N22	W20	196	(D)	5	B	410	27	EKI
80	11	6	17236	N23	W35	194	3000	3.5	21860	N23	W35	198	(B)	4	H	340	24	EKO
80	11	7	17236	N24	W45	191	3100	3.0	21860	N22	W46	196	(B)	4	B	160	4	PHO
80	11	8	17236	N25	W58	193	2400	3.0	21860	N23	W60	197	(B)	4	H	420	7	EAO
80	11	9	17236	N25	W68	190	1400	3.0	21860	N23	W70	194	(B)	3	H	220	4	EKO
80	11	10	17236	N26	W78	187	500	2.5	21860	N23	W78	188	(AF)	3	H	60	1	HAX

HALE REGION 17238 CMP DATE 4.6 NEW REGION IN LOCATION OF REGION 17180

			CALCIUM PLAGE DATA						SUNSPOT DATA								
YR	MO	DA	HL NO.	LAT	CMD	L	AREA	INT	MW NO.	LAT	CMD	L	MAG.	H	STA	AREA	CNT	CLASS
80	10	29	17238	N10	E78	191	600	1.5										
80	10	30	17238	N10	E67	189	1300	2.0										
80	10	31	17238	N10	E54	188	1500	2.0		N13	E51				H	10	2	AXX
80	11	1	17238	N10	E36	189	1400	3.5										
80	11	2	17238	N12	E25	189	900	3.0										
80	11	3	17238	N08	E09	192	900	3.0		N04	E13				H	180	10	DAO
80	11	4	17238	N10	W04	190	900	3.0										
80	11	5	17238	N12	W15	189	1100	3.0										
80	11	6	17238	N12	W30	189	800	3.0	21879	N11	W18	181	(AF)	2	H	50	1	HSX
80	11	7	17238	N12	W43	189	500	3.0										
80	11	8	17238	N13	W51	186	700	2.5										
80	11	9	17238	N12	W65	187	200	2.5										

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HALE REGION 17238 (CONT) CMP DATE 4.6 NEW REGION IN LOCATION OF REGION 17180

				CALCIUM PLAGE DATA						SUNSPOT DATA								
YR	MO	DA	HL NO.	LAT	CMD	L	AREA	INT	MW NO.	LAT	CMD	L	MAG.	H	STA	AREA	CNT	CLASS
80	11	10	17238	N13	W79	188	100	2.0										

HALE REGION 17240 CMP DATE 4.6

				CALCIUM PLAGE DATA						SUNSPOT DATA								
YR	MO	DA	HL NO.	LAT	CMD	L	AREA	INT	MW NO.	LAT	CMD	L	MAG.	H	STA	AREA	CNT	CLASS
80	10	29	17240	N03	E78	191	900	4.0	21858	N03	E78	190	(AP)	3	B	250	7	DHO
80	10	30	17240	N03	E67	189	1700	3.5	21858	N02	E67	188	(BP)	4	H	590	9	DKO
80	10	31	17240	N03	E54	188	1400	3.0	21858	N02	E53	187	(B)	4	H	190	12	DAO
80	11	1	17240	N03	E35	190	2100	3.5	21858	N03	E40	189	(B)	4	H	210	16	DAO
80	11	2	17240	N03	E23	191	1800	3.5	21858	N03	E26	190	(D)	4	H	180	16	DAO
80	11	3	17240	N03	E11	190	1900	3.5	21858	N03	E13	190	(BY)	4	H	180	10	DAO
80	11	4	17240	N03	W05	191	1100	3.5	21858	N03	W01	191	(BP)	4	B	180	11	DSO
80	11	5	17240	N03	W15	189	1700	3.5	21858	N03	W13	189	(B)	4	B	80	8	EAO
80	11	6	17240	N03	W31	190	1100	3.0	21858	N03	W27	190	(BP)	4	H	70	1	HSX
80	11	7	17240	N03	W45	191	700	3.0	21858	N03	W41	191	(3P)	4	B	60	1	HSX
80	11	8	17240	N03	W55	190	600	2.5	21858	N02	W60	197	(AP)	4	H	70	1	HSX
80	11	9	17240	N03	W69	191	300	2.5	21858	N02	W72	196	(AP)	4	H	80	1	HSX
80	11	10	17240	N03	W80	189	200	2.5		N03	W78				L	80	1	HSX

HALE REGION 17241 CMP DATE 4.6 RETURN OF REGION 17193 ROTATION 2

				CALCIUM PLAGE DATA						SUNSPOT DATA								
YR	MO	DA	HL NO.	LAT	CMD	L	AREA	INT	MW NO.	LAT	CMD	L	MAG.	H	STA	AREA	CNT	CLASS
80	10	30	17241	S17	E63	193	300	1.5										
80	10	31	17241	S17	E50	192	300	1.5										
80	11	1	17241	S18	E36	189	200	3.0		S22	E43				B	10	1	AXX
80	11	2	17241	S17	E23	191	100	3.0										
80	11	3	17241	S17	E10	191	300	3.0										
80	11	4	17241	S17	W05	191	100	3.0										
80	11	5	17241	S17	W17	191	100	2.5										
80	11	6	17241	S17	W32	191	100	2.5										
80	11	7	17241	S16	W45	101	100	2.5										

HALE REGION 17245 CMP DATE 6.2

				CALCIUM PLAGE DATA						SUNSPOT DATA								
YR	MO	DA	HL NO.	LAT	CMD	L	AREA	INT	MW NO.	LAT	CMD	L	MAG.	H	STA	AREA	CNT	CLASS
80	10	30	17245						21861	N05	E75	180	X	2	H		1	AXX
80	10	31	17245	N04	E70	172	800	3.0	21861	N05	E68	172	(AP)	4	H	60	2	HSX
80	11	1	17245	N05	E55	170	800	4.0	21861	N05	E56	173	(BP)	4	H	70	4	CSO
80	11	2	17245	N05	E42	172	300	4.0	21861	N05	E43	173	(BP)	4	H	70	2	CSO
80	11	3	17245	N04	E32	169	200	3.0	21861	N05	E30	173	(BP)	4	H	70	1	HSX
80	11	4	17245	N05	E16	170	200	3.0	21861	N05	E16	174	(AP)	4	H	80	1	HSX
80	11	5	17245	N05	E05	169	200	3.5	21861	N05	E04	172	(BP)	4	B	50	1	HSX
80	11	6	17245	N05	W10	169	200	3.5	21861	N05	W11	174	(BP)	4	H	50	1	HSX
80	11	7	17245	N05	W26	172	200	3.0	21861	N05	W23	173	(AP)	4	B	40	1	HSX
80	11	8	17245	N04	W37	172	300	3.5	21861	N06	W37	174	(AP)	4	H	30	1	HSX
80	11	9	17245	N05	W51	173	200	3.0	21861	N05	W49	173	(AP)	4	H	50	1	HSX
80	11	10	17245	N05	W62	171	100	2.5	21861	N06	W62	172	(AP)	4	H	20	1	HSX
80	11	11	17245							N06	W76				H	10	1	HSX
80	11	12	17245							N07	W80				R	570	15	DKI

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HALE REGION 17256 CMP DATE 6.2 NEW REGION IN LOCATION OF NORTHERN TIP OF REGION 17181

			CALCIUM PLAGE DATA						SUNSPOT DATA								
YR	MO	DA	HL NO.	LAT	CMD	L	AREA	INT	MW NO.	LAT	CMD	L	MAG.	H	STA	AREA	CNT	CLASS
80	11	5	17256	N18	E06	168	200	3.5		N13	E12				R	1440	87	FKC
80	11	6	17256	N18	W11	170	100	3.0										
80	11	7	17256	N19	W23	169	100	2.0										
80	11	8	17256	N19	W34	169	100	2.0										

HALE REGION 17244 CMP DATE 6.6 RETURN OF REGION 17181 ROTATION 2

			CALCIUM PLAGE DATA						SUNSPOT DATA								
YR	MO	DA	HL NO.	LAT	CMD	L	AREA	INT	MW NO.	LAT	CMD	L	MAG.	H	STA	AREA	CNT	CLASS
80	10	30	17244						21862	N10	E80	175	X	3	H	70	1	HHX
80	10	31	17244	N10	E77	165	4000	4.0	21862	N11	E71	169	(AP)	4	H	800	10	DKC
80	11	1	17244	N11	E62	163	5100	4.0	21862	N12	E62	167	(D)	5	H	920	21	DKC
80	11	2	17244	N12	E49	165	5900	4.5	21862	N12	E48	168	(D)	5	H	1200	20	EKC
80	11	3	17244	N12	E36	165	6800	4.0	21862	N11	E35	168	(D)	5	H	1500	59	EKC
80	11	4	17244	N12	E21	165	6800	4.0	21862	N11	E21	169	D	5	H	1510	64	EKC
80	11	5	17244	N12	E10	164	6500	4.0	21862	N11	E10	166	(D)	5	D	1200	64	FKC
80	11	6	17244	N12	W05	164	6800	4.0	21862	N11	W04	167	(D)	5	H	1270	76	EKC
80	11	7	17244	N12	W19	165	4900	3.5	21862	N10	W16	166	(D)	5	B	880	13	DKI
80	11	8	17244	N12	W31	166	5200	3.5	21862	N11	W30	167	(D)	5	H	970	50	EKC
80	11	9	17244	N11	W33	155	2500	3.5	21862	N11	W43	167	(D)	5	H	950	22	DKC
80	11	10	17244	N11	W55	164	6200	3.5	21862	N11	W56	166	(D)	5	H	960	16	DKI
80	11	11	17244							N11	W68				H	1030	9	DKI
80	11	12	17244							N11	W85				H	100	4	DAO

HALE REGION 17246 CMP DATE 6.7 NEW REGION IN LOCATION OF REGION 17182

			CALCIUM PLAGE DATA						SUNSPOT DATA								
YR	MO	DA	HL NO.	LAT	CMD	L	AREA	INT	MW NO.	LAT	CMD	L	MAG.	H	STA	AREA	CNT	CLASS
80	10	31	17246	S14	E66	176	600	1.5										
80	11	1	17246	S13	E67	158	700	3.5	21869	S12	E68	161	(B)	3	H	20	4	BXO
80	11	2	17246	S12	E48	166	900	4.0	21869	S13	E54	162	(B)	4	H	30	4	CSO
80	11	3	17246	S12	E37	164	2000	3.5	21869	S11	E40	163	(BY)	4	H	240	6	DAO
80	11	4	17246	S11	E23	163	1400	3.5	21869	S11	E27	163	(B)	4	H	280	14	DAO
80	11	5	17246	S11	E10	164	2100	3.5	21869	S11	E14	162	(D)	5	B	230	17	DSO
80	11	6	17246	S11	W04	163	1500	3.5	21869	S11	E01	162	(B)	4	B	160	13	DSI
80	11	7	17246	S09	W18	164	1700	3.5	21869	S10	W12	162	(BY)	5	B	110	6	DSO
80	11	8	17246	S10	W32	167	1800	3.5	21869	S11	W26	163	(B)	5	H	230	14	ESO
80	11	9	17246	S10	W43	165	1400	3.5	21869	S11	W41	165	(B)	5	H	190	14	CAO
80	11	10	17246	S10	W56	165	2000	3.0	21869	S11	W57	167	(BY)	5	H	300	13	CKO
80	11	11	17246							S11	W71				H	470	6	ESO
80	11	12	17246							S10	W85				H	80	2	CSO

HALE REGION 17248 CMP DATE 7.4 RETURN OF REGION 17189 ROTATION 2

			CALCIUM PLAGE DATA						SUNSPOT DATA								
YR	MO	DA	HL NO.	LAT	CMD	L	AREA	INT	MW NO.	LAT	CMD	L	MAG.	H	STA	AREA	CNT	CLASS
80	11	1	17248	S27	E72	153	200	2.5	21870	S25	E71	158	X	1	H	10	1	AXX
80	11	2	17248	S26	E57	157	100	3.0	21870	S25	E59	157	(AP)	3	H		1	AXX
80	11	3	17248	S26	E46	155	100	2.5	21870	S25	E46	157	(AP)	3	P	30	1	HRX
80	11	4	17248	S25	E32	154	100	2.5	21870	S25	E34	156	AP	2	B		1	AXX
80	11	5	17248	S26	E22	152	100	2.5	21870	S25	E22	154	(AP)	2	R	10	5	AXX
80	11	6	17248	S25	E06	153	100	3.0										
80	11	7	17248	S26	W07	153	100	2.5										

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HALE REGION 17253 CMP DATE 7.4 NEW REGION IN LOCATION OF SOUTHERN TIP OF REGION 17181

			CALCIUM PLAGE DATA						SUNSPOT DATA							
YR	MO	DA	HL NO.	LAT CMD	L	AREA	INT	MW NO.	LAT CMD	L	MAG.	H	STA	AREA	CNT	CLASS
80	11	4	17253	N05 E31	155	300	3.0	21874	N05 E35	155	(B)	4	H	10	2	BXO
80	11	5	17253	N05 E18	156	300	3.0	21874	N03 E22	154	(AF)	2	L	20	2	AXX
80	11	6	17253	N05 E05	154	200	3.0									
80	11	7	17253	N03 W10	156	100	3.0		N05 W15				M	40	1	HSX
80	11	8	17253	N04 W19	154	100	3.0		N07 W29				L	70	1	HSX
80	11	9	17253	N05 W33	155	100	2.5									
80	11	10	17253	N05 W45	154	100	2.0		N06 W55				L	40	1	HSX
80	11	12	17253						N07 W80				R	570	15	DKI

HALE REGION 17254 CMP DATE 7.6

			CALCIUM PLAGE DATA						SUNSPOT DATA							
YR	MO	DA	HL NO.	LAT CMD	L	AREA	INT	MW NO.	LAT CMD	L	MAG.	H	STA	AREA	CNT	CLASS
80	11	4	17254	S15 E38	148	100	2.0		S10 E30				R	350	13	DAO
80	11	5	17254	S14 E24	150	100	2.5	21877	S14 E27	149	(AF)	1	R	300	16	DSO
80	11	6	17254	S14 E08	151	200	3.0	21877	S14 E12	151	(B)	2	H		1	AXX
80	11	7	17254	S14 W04	150	200	3.0	21877	S14 W00	150	(AF)	2	M	260	21	ESI
80	11	8	17254	S13 W16	151	100	3.0		S10 W26				H	230	14	ESO
80	11	9	17254	S13 W30	152	100	2.5		S10 W40				H	190	14	CAO
80	11	10	17254	S14 W43	152	100	2.0		S10 W53				B	310	15	EAO
80	11	11	17254						S11 W59				M	270	10	ESO
80	11	12	17254						S14 W79				R	220	3	DAO

HALE REGION 17247 CMP DATE 8.3 RETURN OF REGION 17187 ROTATIONS 4 AND 5

			CALCIUM PLAGE DATA						SUNSPOT DATA							
YR	MO	DA	HL NO.	LAT CMD	L	AREA	INT	MW NO.	LAT CMD	L	MAG.	H	STA	AREA	CNT	CLASS
80	11	1	17247	N11 E75	150	300	2.5		N07 E75				B	10	2	AXX
80	11	2	17247	N12 E66	148	400	2.5		N12 E56				L	1010	18	DKC
80	11	3	17247	N14 E55	146	800	3.0		N13 E45				M	660	28	EKC
80	11	4	17247	N15 E41	145	900	3.0									
80	11	5	17247	N14 E31	143	1000	3.0									
80	11	6	17247	N14 E15	144	1200	3.0		N17 E13				P	10	1	AXX
80	11	7	17247	N17 E05	141	1200	2.5	21882	N14 W03	153	AP	1	M	180	80	FKC
80	11	8	17247	N17 W05	140	1000	3.0									
80	11	9	17247	N17 W19	141	700	2.5									
80	11	10	17247	N17 W32	141	1300	3.0									
80	11	13	17247	N10 W60	130	700	2.0									
80	11	14	17247	N20 W69	125	700	2.5									
80	11	15	17247	N25 W72	115	600	3.0									

HALE REGION 17258 CMP DATE 8.9

			CALCIUM PLAGE DATA						SUNSPOT DATA							
YR	MO	DA	HL NO.	LAT CMD	L	AREA	INT	MW NO.	LAT CMD	L	MAG.	H	STA	AREA	CNT	CLASS
80	11	8	17258	N47 E02	133	100	2.0									

HALE REGION 17262 CMP DATE 8.9

			CALCIUM PLAGE DATA						SUNSPOT DATA							
YR	MO	DA	HL NO.	LAT CMD	L	AREA	INT	MW NO.	LAT CMD	L	MAG.	H	STA	AREA	CNT	CLASS
80	11	9	17262	S28 W12	134	100	1.5									
80	11	10	17262	S28 W26	135	100	2.0									

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HALE REGION 17251 CMP DATE 9.1

				CALCIUM PLAGE DATA						SUNSPOT DATA							
YR	MO	DA	HL NO.	LAT CMD	L	AREA	INT	MW NO.	LAT CMD	L	MAG.	H	STA	AREA	CNT	CLASS
80	11	3	17251	S18 E72	129	200	2.5									
80	11	4	17251	S18 E58	128	600	3.5	21875	S17 E58	132	B	2	H	20	2	BXO
80	11	5	17251	S18 E45	129	1100	4.0	21875	S19 E46	130	(D)	3	B	40	13	DAO
80	11	6	17251	S18 E31	128	1300	3.5	21875	S18 E34	129	(B)	4	H	110	21	EAO
80	11	7	17251	S17 E15	131	1700	3.5	21875	S18 E20	130	(BY)	4	B	130	12	DAO
80	11	8	17251	S18 E04	131	2600	3.0	21875	S18 E05	132	(D)	5	H	300	22	EAI
80	11	9	17251	S17 W12	134	2600	3.0	21875	S19 W09	133	(BY)	5	H	290	29	EAI
80	11	10	17251	S18 W24	133	1400	3.5	21875	S18 W23	133	(BY)	5	H	210	18	EKO
80	11	11	17251						S18 W36				H	130	19	EKO
80	11	12	17251						S18 W51				H	210	13	EAO
80	11	13	17251	S17 W62	132	2400	3.0	21875	S17 W63	134	(B)	4	R	250	10	ESO
80	11	14	17251	S17 W73	129	1000	3.5	21875	S18 W80	138	AP	2	H	70	1	HAX

HALE REGION 17249 CMP DATE 9.2 FRONT NEW, REAR IS FRONT HALF OF 17188 ROTATIONS 1 AND 3

				CALCIUM PLAGE DATA						SUNSPOT DATA							
YR	MO	DA	HL NO.	LAT CMD	L	AREA	INT	MW NO.	LAT CMD	L	MAG.	H	STA	AREA	CNT	CLASS
80	11	2	17249	S08 E72	142	500	2.0		S12 E62				L	30	6	CSO
80	11	3	17249	S11 E68	133	1100	3.0									
80	11	4	17249	S10 E59	127	1700	3.0									
80	11	5	17249	S11 E50	124	2500	3.5									
80	11	6	17249	S12 E35	124	2300	3.5									
80	11	7	17249	S10 E17	129	3000	3.0	21881	S07 E27	123	(AF)	3	H		1	AXX
80	11	7	17249	S10 E17	129	3000	3.0	21880	S06 E14	136	(AP)	2	H		1	AXX
80	11	8	17249	S11 E06	129	2400	3.5	21885	S12 E18	119	(AF)	2				
80	11	9	17249	S10 W07	129	3500	3.0	21886	S11 W03	127	(AF)	2	H	10	2	BXO
80	11	10	17249	S12 W18	127	2100	3.5	21886	S11 W14	124	(AF)	3	H		2	AXX
80	11	10	17249	S12 W18	127	2100	3.5	21885	S11 W03	113	(BF)	3	H		1	AXX
80	11	11	17249						S13 W27				H		1	AXX
80	11	12	17249						S12 W39				B		1	AXX
80	11	13	17249	S11 W53	123	1500	3.0									
80	11	14	17249	S15 W62	118	900	3.0		S18 W68				M	130	3	DSO
80	11	15	17249	S14 W72	115	300	3.0									

HALE REGION 17257 CMP DATE 10.2

				CALCIUM PLAGE DATA						SUNSPOT DATA							
YR	MO	DA	HL NO.	LAT CMD	L	AREA	INT	MW NO.	LAT CMD	L	MAG.	H	STA	AREA	CNT	CLASS
80	11	5	17257	N20 E57	117	200	2.0		N18 E52				L	10	3	BXO
80	11	6	17257	N19 E42	117	300	2.5									
80	11	7	17257	N21 E28	118	300	2.5									
80	11	8	17257	N20 E20	115	500	3.0									
80	11	9	17257	N20 E06	116	300	2.0									
80	11	10	17257	N21 W06	103	400	2.5									
80	11	13	17257	N21 W45	115	200	2.0									
80	11	14	17257	N23 W55	111	200	3.0	21892	N25 W62	120	(AP)	3				
80	11	15	17257	N23 W65	108	200	2.0									

HALE REGION 17263 CMP DATE 11.3

				CALCIUM PLAGE DATA						SUNSPOT DATA							
YR	MO	DA	HL NO.	LAT CMD	L	AREA	INT	MW NO.	LAT CMD	L	MAG.	H	STA	AREA	CNT	CLASS
80	11	9	17263	N12 E21	101	100	2.0									
80	11	10	17263	N12 E08	101	100	1.5									
80	11	13	17263	N14 W31	101	100	2.0									
80	11	14	17263	N17 W44	100	100	3.0									
80	11	15	17263	N17 W55	98	100	2.5									

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HALE REGION 17255 CMP DATE 11.6 RETURN OF REAR HALF OF REGION 17188

			CALCIUM PLAGE DATA						SUNSPOT DATA								
YR	MO	DA	HL NO.	LAT	CMD	L	AREA	INT	MW NO.	LAT	CMD	L	MAG.	H	STA	AREA	CNT	CLASS
80	11	4	17255	S11	E80	106	200	2.5	21876	S12	E65	125	(AP)	2	H	20	2	BXO
80	11	5	17255	S11	E74	100	2200	4.0	21878	S11	E77	99	(B)	4	B	570	9	EKI
80	11	6	17255	S10	E61	98	3200	4.0	21878	S11	E63	100	(BY)	4	H	1760	36	FKI
80	11	7	17255	S10	E44	102	3500	3.5	21878	S11	E50	100	(D)	5	B	800	14	FKI
80	11	8	17255	S10	E35	100	4600	3.5	21878	S11	E38	99	(D)	5	H	1950	57	FKC
80	11	9	17255	S10	E23	99	6100	3.5	21878	S11	E25	99	(D)	5	H	2070	47	FKC
80	11	10	17255	S10	E11	98	6300	3.5	21878	S11	E12	98	(D)	6	H	1920	62	FKC
80	11	11	17255							S11	W02				H	2240	67	FKC
80	11	12	17255							S11	W13				H	2500	59	FKC
80	11	13	17255	S10	W28	98	7500	3.5	21878	S11	W26	97	(D)	5	R	1800	29	FKI
80	11	14	17255	S10	W41	97	5600	4.0	21878	S11	W40	98	(D)	5	H	1690	58	FKC
80	11	15	17255	S11	W52	95	5100	4.0	21878	S11	W52	96	(D)	4	R	1960	76	FKI
80	11	16	17255	S11	W67	96	5600	4.0	21878	S11	W68	99	(D)	4	B	2000	65	FKC
80	11	17	17255						21878	S12	W76	94	B	3	B	1040	27	FKI

HALE REGION 17264 CMP DATE 13.9

			CALCIUM PLAGE DATA						SUNSPOT DATA								
YR	MO	DA	HL NO.	LAT	CMD	L	AREA	INT	MW NO.	LAT	CMD	L	MAG.	H	STA	AREA	CNT	CLASS
80	11	10	17264	N07	E40	69	200	2.0										
80	11	13	17264	N07	E03	67	100	2.0										
80	11	14	17264	N07	W12	68	200	3.0										
80	11	15	17264	N06	W24	67	100	3.0										
80	11	16	17264	N06	W39	68	100	2.5										
80	11	18	17264	N05	W67	70	200	2.5										

HALE REGION 17261 CMP DATE 14.1

			CALCIUM PLAGE DATA						SUNSPOT DATA								
YR	MO	DA	HL NO.	LAT	CMD	L	AREA	INT	MW NO.	LAT	CMD	L	MAG.	H	STA	AREA	CNT	CLASS
80	11	8	17261	S14	E69	66	100	2.0										
80	11	9	17261	S14	E57	65	200	2.0										
80	11	10	17261	S15	E45	64	200	2.0										
80	11	12	17261							S11	E11				R	1450	42	FKC
80	11	13	17261	S14	E05	65	100	2.0										
80	11	14	17261	S16	W10	66	200	2.5										
80	11	15	17261	S15	W23	66	200	2.5										
80	11	16	17261	S15	W37	66	200	2.5										
80	11	18	17261	S15	W80	83	100	2.0		S14	W89				R	220	9	DKO

HALE REGION 17260 CMP DATE 14.5 RETURN OF REGION 17224 ROTATION 2

			CALCIUM PLAGE DATA						SUNSPOT DATA								
YR	MO	DA	HL NO.	LAT	CMD	L	AREA	INT	MW NO.	LAT	CMD	L	MAG.	H	STA	AREA	CNT	CLASS
80	11	8	17260	S07	E75	60	200	2.0										
80	11	9	17260	S07	E62	60	200	2.0										
80	11	10	17260	S07	E50	59	400	2.5										
80	11	13	17260	S07	E10	60	400	2.5										
80	11	14	17260	S07	W04	60	400	3.0										
80	11	15	17260	S07	W18	61	300	3.0										
80	11	16	17260	S07	W30	59	300	3.0										
80	11	18	17260	S07	W58	61	200	2.5										
80	11	19	17260	S07	W72	62	100	2.0										

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HALE REGION 17277 CMP DATE 14.7

			CALCIUM PLAGE DATA						SUNSPOT DATA								
YR	MO	DA	HL NO.	LAT	CMD	L	AREA	INT	MW NO.	LAT	CMD	L	MAG.	H	STA	AREA	CNT	CLASS
80	11	15	17277	S30	W13	56	200	2.5										

HALE REGION 17259 CMP DATE 14.8 RETURN OF LEADING EDGE OF 17204 ROTATION 3

			CALCIUM PLAGE DATA						SUNSPOT DATA								
YR	MO	DA	HL NO.	LAT	CMD	L	AREA	INT	MW NO.	LAT	CMD	L	MAG.	H	STA	AREA	CNT	CLASS
80	11	8	17259	N17	E77	58	100	2.0										
80	11	9	17259	N17	E68	54	300	2.0										
80	11	10	17259	N20	E55	54	300	2.5										
80	11	13	17259	N22	E15	55	600	2.5										
80	11	14	17259	N22	E01	55	400	3.0										
80	11	15	17259	N23	W08	51	400	3.0										
80	11	16	17259	N23	W22	51	400	3.0										
80	11	18	17259	N23	W48	51	400	3.0										
80	11	19	17259	N24	W58	48	300	2.5										
80	11	20	17259	N23	W70	47	100	2.0		N19	W60				B	30	2	CRO

HALE REGION 17265 CMP DATE 14.8 RETURN OF PART OF SOUTHERN EDGE OF 17204 ROTATION 3

			CALCIUM PLAGE DATA						SUNSPOT DATA								
YR	MO	DA	HL NO.	LAT	CMD	L	AREA	INT	MW NO.	LAT	CMD	L	MAG.	H	STA	AREA	CNT	CLASS
80	11	10	17265	N13	E53	56	200	2.5		N12	E53				H		1	AXX
80	11	13	17265	N14	E14	56	100	2.5										
80	11	14	17265	N14	E01	55	100	3.5										
80	11	15	17265	N15	W13	56	100	3.0										
80	11	16	17265	N15	W27	56	100	2.5										
80	11	18	17265	N15	W51	54	100	2.0										

HALE REGION 17267 CMP DATE 16.4

			CALCIUM PLAGE DATA						SUNSPOT DATA								
YR	MO	DA	HL NO.	LAT	CMD	L	AREA	INT	MW NO.	LAT	CMD	L	MAG.	H	STA	AREA	CNT	CLASS
80	11	10	17267	N11	E71	38	200	2.0	21887	N13	E64	46	(X)	2				
80	11	13	17267	N11	E35	35	200	2.0	21889	N17	E29	42	(AP)	2	R	90	16	CAO
80	11	14	17267	N11	E21	35	400	3.0	21889	N17	E15	43	(AP)	4	H	120	12	EAO
80	11	15	17267	N11	E06	37	200	3.5	21889	N18	E03	41	(B)	4	R	160	12	DAO
80	11	16	17267	N12	W05	34	200	3.0	21889	N17	W13	44	(AP)	3	B	210	13	DSO
80	11	17	17267						21889	N17	W26	44	AP	2	B	90	15	DSO
80	11	18	17267	N11	W29	32	100	2.5										
80	11	19	17267	N12	W43	33	100	2.5		N17	W45				H	70	6	CAO
80	11	20	17267	N12	W55	32	100	2.0		N17	W60				H	30	2	CRO
80	11	21	17267	N12	W67	31	100	1.5		N17	W67				L		2	BXO

HALE REGION 17270 CMP DATE 16.5 RETURN OF NORTHERN EDGE OF 17216 ROTATION 2

			CALCIUM PLAGE DATA						SUNSPOT DATA								
YR	MO	DA	HL NO.	LAT	CMD	L	AREA	INT	MW NO.	LAT	CMD	L	MAG.	H	STA	AREA	CNT	CLASS
80	11	13	17270	S28	E33	37	300	3.0										
80	11	14	17270	S28	E22	34	400	3.0										
80	11	15	17270	S29	E10	33	100	3.0										
80	11	16	17270	S28	W04	33	200	3.0										
80	11	18	17270	S29	W28	31	200	3.0										
80	11	19	17270	S29	W41	31	100	3.0										
80	11	20	17270	S29	W53	30	100	2.5										
80	11	21	17270	S28	W68	32	100	2.0										

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HALE REGION 17266 CMP DATE 16.7 RETURN OF REGIONS 17208 AND 17214 ROTATION 2

			CALCIUM PLAGE DATA							SUNSPOT DATA							
YR	MO	DA	HL NO.	LAT	CMD	L	AREA	INT	MW NO.	LAT	CMD	L	MAG.	H	STA	AREA	CNT	CLASS
80	11	10	17266	N20	E74	35	900	2.5	21888	N18	E78	32	(X)	1	H		2	AXX
80	11	11	17266							N18	E65				H		4	BXO
80	11	12	17266							N17	E53				H	70	12	CAO
80	11	13	17266	N22	E38	32	2700	3.0	21888	N18	E37	34	(BP)	3	R	90	16	CAO
80	11	14	17266	N20	E23	33	3200	3.5	21888	N19	E26	32	(BP)	5	H	120	12	EAO
80	11	15	17266	N19	E10	33	3200	4.0	21888	N19	E09	35	(AP)	3	R	160	12	DAO
80	11	16	17266	N20	W02	31	2800	4.0	21888	N18	W06	37	(BF)	3	B	210	13	DSO
80	11	17	17266						21894	N23	W10	28	(B)	3	B	10	4	BXO
80	11	17	17266						21888	N18	W20	38	B	3	B	90	15	DSO
80	11	18	17266	N18	W32	35	3200	3.5	21894	N22	W22	27	(AF)	3	H	30	10	BXO
80	11	18	17266	N18	W32	35	3200	3.5	21888	N18	W32	37	(D)	3	H	80	18	CAO
80	11	19	17266	N20	W43	33	3300	3.5	21888	N17	W46	38	(B)	3	H	70	6	CAO
80	11	20	17266	N20	W54	31	2700	3.5	21888	N17	W61	39	(B)	3	H	30	2	CRO
80	11	21	17266	N22	W65	29	1900	3.5		N18	W69				P	30	1	AXX
80	11	22	17266	N24	W79	27	500	2.5										

HALE REGION 17271 CMP DATE 17.2 RETURN OF SOUTHERN EDGE OF 17216 ROTATION 2

			CALCIUM PLAGE DATA						SUNSPOT DATA								
YR	MO	DA	HL NO.	LAT	CMD	L	AREA	INT	MW NO.	LAT	CMD	L	MAG.	H	STA	AREA	CNT	CLASS
80	11	13	17271	S37	E41	29	200	2.5										
80	11	14	17271	S37	E28	28	400	3.0										
80	11	15	17271	S38	E18	25	400	3.0										
80	11	16	17271	S38	E05	24	200	3.0										
80	11	18	17271	S38	W18	21	200	2.5										
80	11	19	17271	S38	W31	21	100	2.0										
80	11	20	17271	S38	W42	19	200	2.0										
80	11	21	17271	S38	W55	19	100	1.5										

HALE REGION 17269 CMP DATE 17.5 NEW, IN LOCATION OF REGION 17217

			CALCIUM PLAGE DATA						SUNSPOT DATA								
YR	MO	DA	HL NO.	LAT	CMD	L	AREA	INT	MW NO.	LAT	CMD	L	MAG.	H	STA	AREA	CNT	CLASS
80	11	13	17269	S16	E51	19	200	2.5										
80	11	14	17269	S17	E37	19	200	3.0										
80	11	15	17269	S16	E24	19	200	3.5										
80	11	16	17269	S16	E09	20	100	2.5										
80	11	18	17269	S17	W17	20	200	3.0										
80	11	19	17269	S17	W30	20	100	3.0										
80	11	20	17269	S18	W44	21	100	2.5		S21	W38				R	20	5	BXO
80	11	21	17269	S18	W58	22	100	1.5										

HALE REGION 17280 CMP DATE 18.5

			CALCIUM PLAGE DATA						SUNSPOT DATA								
YR	MO	DA	HL NO.	LAT	CMD	L	AREA	INT	MW NO.	LAT	CMD	L	MAG.	H	STA	AREA	CNT	CLASS
80	11	16	17280	S14	E22	7	100	3.0										
80	11	17	17280						21895	S15	E11	7	B	2	B	20	4	BXO
80	11	18	17280	S15	W04	7	100	3.5	21895	S15	W02	7	(B)	2	H	40	7	BXO
80	11	19	17280	S15	W18	8	100	3.0	21895	S15	W17	9	(B)	3	H	30	3	BXO
80	11	20	17280	S15	W32	9	100	3.0		S18	W24				R	120	1	HSX
80	11	21	17280	S14	W44	8	100	2.5										

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HALE REGION 17268 CMP DATE 18.9

				CALCIUM PLAGE DATA						SUNSPOT DATA							
YR	MO	DA	HL NO.	LAT CMD	L	AREA	INT	MW NO.	LAT CMD	L	MAG.	H	STA	AREA	CNT	CLASS
80	11	12	17268						N17 E80				H	10	3	BXO
80	11	13	17268	N16 E68	2	1400	3.0	21890	N16 E68	3	(AP)	3	R	50	5	CRO
80	11	14	17268	N16 E55	1	2400	3.5	21890	N16 E57	1	(B)	3	H	40	13	DSO
80	11	15	17268	N16 E42	1	2000	3.5	21890	N16 E43	1	(B)	3	R	100	14	DAO
80	11	16	17268	N16 E28	1	1800	4.0	21890	N16 E30	1	(B)	3	B	160	13	ESI
80	11	17	17268					21890	N17 E16	2	B	4	B	110	42	ESI
80	11	18	17268	N16 E02	1	2200	3.5	21890	N15 E03	2	(B)	3	H	70	30	CAO
80	11	19	17268	N17 W12	2	2000	3.5	21890	N16 W07	359	(D)	3	H	80	10	CAO
80	11	20	17268	N17 W23	0	1800	3.5	21890	N16 W22		(B)	3	H	150	11	ESO
80	11	21	17268	N17 W36	0	1700	3.5	21890	N16 W35		(B)	3	B	20	5	CRO
80	11	22	17268	N17 W52	0	1600	3.0	21890	N17 W48		(B)	3	H	10	3	BXO
80	11	23	17268	N17 W65	0	1100	3.0	21890	N17 W65	3	(AP)	3	H		3	BXO
80	11	24	17268	N17 W75	359	600	2.5		N13 W81				R	30	1	AXX

HALE REGION 17272 CMP DATE 19.0

				CALCIUM PLAGE DATA						SUNSPOT DATA							
YR	MO	DA	HL NO.	LAT CMD	L	AREA	INT	MW NO.	LAT CMD	L	MAG.	H	STA	AREA	CNT	CLASS
80	11	13	17272	S17 E65	5	100	2.0									
80	11	14	17272	S16 E54	2	200	3.0		S18 E64				P	130	1	HSX
80	11	15	17272	S16 E41	2	100	3.0		S17 E49				H	100	1	HSX
80	11	16	17272	S15 E28	1	100	3.0		S18 E37				H	110	1	HSX
80	11	18	17272	S15 E03	0	100	2.5		S17 E12				B	120	2	HSX

HALE REGION 17276 CMP DATE 20.1 RETURN OF NORTHERN TIP OF 17212 ROTATION 2

				CALCIUM PLAGE DATA						SUNSPOT DATA							
YR	MO	DA	HL NO.	LAT CMD	L	AREA	INT	MW NO.	LAT CMD	L	MAG.	H	STA	AREA	CNT	CLASS
80	11	15	17276	S11 E57	346	100	3.0		S15 E56				R	80	1	HSX
80	11	16	17276	S10 E45	344	100	3.5		S15 E43				R	100	1	HSX
80	11	18	17276	S11 E17	346	100	3.0		S08 E26				H	20	3	BXO
80	11	19	17276	S09 E05	345	100	2.0									
80	11	20	17276	S08 W07	344	100	3.0									
80	11	21	17276	S09 W22	346	100	2.5									

HALE REGION 17273 CMP DATE 20.2 RETURN OF REGION 17212 ROTATION 2

				CALCIUM PLAGE DATA						SUNSPOT DATA							
YR	MO	DA	HL NO.	LAT CMD	L	AREA	INT	MW NO.	LAT CMD	L	MAG.	H	STA	AREA	CNT	CLASS
80	11	13	17273	S18 E75	355	200	2.0	21891	S16 E78	353	AP	2	R	60	1	HSX
80	11	14	17273	S17 E68	348	1400	3.0	21891	S17 E66	352	(AP)	3	H	100	1	HSX
80	11	15	17273	S19 E52	351	1400	3.0	21891	S16 E53	351	(AP)	4	R	80	1	HSX
80	11	16	17273	S19 E43	346	1200	3.5	21891	S17 E40	351	(AP)	4	B	240	1	HSX
80	11	17	17273					21891	S16 E27	351	AP	5	B	140	1	HSX
80	11	18	17273	S20 E18	345	1800	3.0	21891	S17 E15	350	(AP)	5	H	160	1	HSX
80	11	18	17273	S20 E18	345	1800	3.0	21900	S22 E11	354	(AP)	1	H	160	1	HSX
80	11	19	17273	S20 E06	344	1600	3.0	21891	S18 E02	350	(AP)	5	H	160	1	HSX
80	11	20	17273	S20 W08	345	1500	3.0	21891	S17 W13	351	(AP)	4	H	150	1	HHX
80	11	21	17273	S22 W18	342	1900	3.0	21891	S17 W25	350	(AP)	5	B	100	1	HSX
80	11	22	17273	S21 W35	343	1300	2.5	21891	S17 W37	349	(AP)	4	H	100	1	HSX
80	11	23	17273	S20 W45	340	900	2.5	21891	S16 W52	350	(AP)	4	H	40	1	HAX
80	11	24	17273	S20 W58	342	400	2.0	21891	S17 W64	349	(AP)	4	H	70	1	HSX
80	11	25	17273					21891	S17 W79	351	(AP)	4	B	100	1	HRX

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HALE REGION 17275 CMP DATE 20.2

CALCIUM PLAGE DATA									SUNSPOT DATA								
YR	MO	DA	HL NO.	LAT CMD	L	AREA	INT	MW NO.	LAT CMD	L	MAG.	H	STA	AREA	CNT	CLASS
80	11	14	17275	N10 E73	343	100	2.5		N15 E64				M	90	5	CSO
80	11	15	17275	N08 E58	345	200	3.0									
80	11	16	17275	N08 E46	343	200	3.0									
80	11	18	17275	N10 E22	341	100	3.0									
80	11	19	17275	N10 E07	343	100	2.0									
80	11	20	17275	N06 W07	344	100	3.0		N09 W05				R	180	30	DRO
80	11	21	17275	N08 W22	346	100	3.0									
80	11	22	17275	N08 W35	343	100	3.0									

HALE REGION 17274 CMP DATE 20.4 NEW, IN LOCATION OF 17218

CALCIUM PLAGE DATA									SUNSPOT DATA								
YR	MO	DA	HL NO.	LAT CMD	L	AREA	INT	MW NO.	LAT CMD	L	MAG.	H	STA	AREA	CNT	CLASS
80	11	14	17274	N13 E78	338	200	2.5									
80	11	15	17274	N13 E64	339	300	3.0									
80	11	16	17274	N14 E49	340	100	3.0		N17 E40				L	180	24	EAI
80	11	18	17274	N14 E23	340	200	3.0		N09 E33				P	140	20	CAO
80	11	19	17274	N14 E11	339	200	2.0		N09 E19				M	120	35	DAI
80	11	20	17274	N14 W04	341	300	3.0		N09 W05				R	180	30	DRO
80	11	21	17274	N14 W17	341	200	3.0		N09 W09				M	110	19	DAO
80	11	22	17274	N16 W36	344	700	3.0	21903	N16 W32	344	(B)	3	H	60	7	DAO
80	11	23	17274	N16 W50	345	700	3.0	21903	N16 W45	343	(B)	3	H	50	6	DSO
80	11	24	17274	N16 W62	346	500	3.5		N16 W60				H	20	3	CRO
80	11	25	17274					21903	N16 W72	344	(AP)	3	P	300	6	DKO

HALE REGION 17282 CMP DATE 20.4

CALCIUM PLAGE DATA									SUNSPOT DATA								
YR	MO	DA	HL NO.	LAT CMD	L	AREA	INT	MW NO.	LAT CMD	L	MAG.	H	STA	AREA	CNT	CLASS
80	11	18	17282	S08 E24	339	100	3.0		S08 E26				H	20	3	BXO
80	11	19	17282	S09 E09	341	100	2.0									

HALE REGION 17278 CMP DATE 21.3 RETURN OF FRONT HALF OF 17223 ROTATION 4

CALCIUM PLAGE DATA									SUNSPOT DATA								
YR	MO	DA	HL NO.	LAT CMD	L	AREA	INT	MW NO.	LAT CMD	L	MAG.	H	STA	AREA	CNT	CLASS
80	11	15	17278	S09 E69	334	200	2.5									
80	11	16	17278	S08 E58	331	400	3.0									
80	11	18	17278	S08 E24	339	700	3.0	21898	S08 E25	340	(B)	3	H	20	3	BXO
80	11	19	17278	S08 E18	332	600	3.0		S09 E20				L	10	2	BXO
80	11	20	17278	S08 E06	331	500	3.0									
80	11	21	17278	S08 W06	330	800	3.0									
80	11	22	17278	S00 W22	330	600	2.5		S11 W32				P	10	2	AXX
80	11	23	17278	S08 W36	331	1000	3.0	21904	S07 W37	335	(B)	4	H	40	7	DSO
80	11	24	17278	S07 W42	326	400	3.0	21904	S06 W53	338	(AP)	4	H	80	5	CSO
80	11	25	17278					21904	S07 W67	339	(AP)	4	B	140	1	HAX

HALE REGION 17279 CMP DATE 21.3

CALCIUM PLAGE DATA									SUNSPOT DATA								
YR	MO	DA	HL NO.	LAT CMD	L	AREA	INT	MW NO.	LAT CMD	L	MAG.	H	STA	AREA	CNT	CLASS
80	11	15	17279	N11 E74	329	300	3.0		N10 E84				M	140	1	HAX
80	11	16	17279	N12 E62	327	1000	3.0		N11 E66				B		1	AXX
80	11	17	17279					21896	N10 E49	329	BY	3	B	40	7	CRO
80	11	18	17279	N08 E34	329	1700	3.5	21896	N07 E36	329	(BY)	4	H	100	21	DAI
80	11	19	17279	N08 E19	331	1300	3.0	21896	N10 E22	330	(BY)	5	H	70	17	CAI
80	11	20	17279	N08 E07	330	1900	3.5	21896	N10 E09	329	(BP)	4	H	200	53	CAI
80	11	21	17279	N08 W06	330	2100	3.5	21896	N10 W05	330	(BP)	3	B	80	15	EAO
80	11	22	17279	N08 W23	331	2400	3.5		N10 W18				H	80	22	EAI

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HALE REGION 17279 (CONT) CMP DATE 21.3

CALCIUM PLAGE DATA

YR	MO	DA	HL NO.	LAT CMD	L	AREA	INT
80	11	23	17279	N10 W35	330	2500	3.5
80	11	24	17279	N11 W45	329	2100	3.0
80	11	25	17279				
80	11	26	17279				

SUNSPOT DATA

MW NO.	LAT CMD	L	MAG.	H	STA	AREA	CNT	CLASS
21896	N10 W32	330	(BP)	4	H	100	25	EAI
21896	N10 W49	334	(AP)	4	H	200	15	DAI
21896	N09 W59	331	(B)	4	B	110	10	DSI
21896	N09 W70	329	(B)	4	H	440	10	EAI

HALE REGION 17281 CMP DATE 22.5 RETURN OF TRAILING HALF OF 17219&17222 ROTATIONS 3 AND 2

CALCIUM PLAGE DATA

YR	MO	DA	HL NO.	LAT CMD	L	AREA	INT
80	11	16	17281	N12 E78	311	500	4.0
80	11	17	17281				
80	11	18	17281	N12 E50	313	2600	4.0
80	11	19	17281	N12 E36	314	2600	4.0
80	11	20	17281	N12 E23	314	3300	4.0
80	11	21	17281	N12 E11	313	3200	4.0
80	11	22	17281	N13 W06	314	2900	3.5
80	11	23	17281	N13 W18	313	2400	3.5
80	11	24	17281	N13 W27	311	2200	4.0
80	11	25	17281				
80	11	26	17281				
80	11	28	17281				

SUNSPOT DATA

MW NO.	LAT CMD	L	MAG.	H	STA	AREA	CNT	CLASS
21893	N10 E75	316	B	2	B	650	9	EAI
21893	N12 E65	313	D	4	B	480	23	EKI
21893	N12 E51	314	(D)	4	H	710	36	EKI
21893	N12 E37	315	(D)	5	H	690	30	EKI
21893	N12 E23	315	(B)	5	H	610	25	EKI
21893	N12 E09	316	(BP)	4	B	200	33	DAI
21893	N12 W04	316	(BY)	4	H	190	34	EAI
21893	N12 W17	315	(BP)	4	H	150	30	EAI
21893	N12 W28	313	(BP)	4	H	180	23	EAI
21893	N10 W40	312	(BP)	3	B	70	13	DRI
21893	N07 W54	313	(BP)	3	H	80	6	DAO
21893	N08 W77	309	AP	2	R	40	4	CRO

HALE REGION 17283 CMP DATE 24.2

CALCIUM PLAGE DATA

YR	MO	DA	HL NO.	LAT CMD	L	AREA	INT
80	11	18	17283	S35 E68	295	300	2.5
80	11	19	17283	S36 E54	296	200	2.5
80	11	20	17283	S36 E42	295	200	2.5
80	11	21	17283	S34 E29	295	300	3.0
80	11	22	17283	S34 E15	293	200	2.0
80	11	23	17283	S33 E03	292	200	2.5
80	11	24	17283	S35 W10	294	200	2.0

SUNSPOT DATA

MW NO.	LAT CMD	L	MAG.	H	STA	AREA	CNT	CLASS

HALE REGION 17285 CMP DATE 24.8 RETURN OF REGION 17226 ROTATION 2

CALCIUM PLAGE DATA

YR	MO	DA	HL NO.	LAT CMD	L	AREA	INT
80	11	19	17285	S12 E67	283	500	3.0
80	11	20	17285	S11 E55	282	600	3.0
80	11	21	17285	S11 E42	282	500	3.0
80	11	22	17285	S10 E26	282	300	3.0
80	11	23	17285	S11 E14	281	300	3.0
80	11	24	17285	S11 W00	284	300	3.0

SUNSPOT DATA

MW NO.	LAT CMD	L	MAG.	H	STA	AREA	CNT	CLASS
21901	S12 E70	282	(AP)	2	H	10	2	BXO
	S16 E56				R	80	5	HSX
	S12 E17				H	10	3	BXO

HALE REGION 17284 CMP DATE 25.1 RETURN OF SOUTHERN PART OF 17226 ROTATION 2

CALCIUM PLAGE DATA

YR	MO	DA	HL NO.	LAT CMD	L	AREA	INT
80	11	18	17284	S17 E80	283	200	3.0
80	11	19	17284	S17 E68	282	500	3.0
80	11	20	17284	S17 E57	280	600	3.0
80	11	21	17284	S18 E46	278	1800	3.0
80	11	22	17284	S17 E28	280	700	3.5
80	11	23	17284	S16 E16	279	1000	3.0
80	11	24	17284	S16 E04	280	500	3.5
80	11	25	17284				
80	11	26	17284				
80	11	28	17284				

SUNSPOT DATA

MW NO.	LAT CMD	L	MAG.	H	STA	AREA	CNT	CLASS
21899	S17 E85	280	AP	2	H	140	1	HSX
21899	S19 E69	283	(AP)	2	H	130	1	HSX
21899	S18 E56	282	(AP)	4	H	250	4	HHX
21899	S17 E44	281	(AP)	4	B	150	3	HAX
21899	S17 E31	281	(AP)	4	H	130	2	HAX
21899	S18 E17	281	(AP)	5	H	100	4	CAO
21899	S18 E04	281	(AP)	4	H	150	1	HAX
21899	S18 W08	280	(AP)	4	B	120	22	CSO
21899	S18 W21	280	(AP)	5	H	150	12	CAO
21899	S19 W48	280	(AP)	4	H	50	1	HAX

REGIONS OF SOLAR ACTIVITY

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HALE REGION 17284 (CONT) CMP DATE 25.1 RETURN OF SOUTHERN PART OF 17226 ROTATION 2

			CALCIUM PLAGE DATA						SUNSPOT DATA							
YR	MO	DA	HL NO.	LAT CMD	L	AREA	INT	MW NO.	LAT CMD	L	MAG.	H	STA	AREA	CNT	CLASS
80	11	29	17284					21899	S19 W62	280	(AP)	3	H	70	1	HSX
80	11	30	17284	S18 W73	277	300	2.5	21899	S19 W77	283	(AP)	3	H	70	1	HSX

HALE REGION 17286 CMP DATE 25.1 REUTRN OF REGION 17225 ROTATIONS 4 AND 3

			CALCIUM PLAGE DATA						SUNSPOT DATA							
YR	MO	DA	HL NO.	LAT CMD	L	AREA	INT	MW NO.	LAT CMD	L	MAG.	H	STA	AREA	CNT	CLASS
80	11	19	17286	N18 E72	278	400	1.5									
80	11	20	17286	N18 E65	272	600	2.0		N16 E60				R	80	3	CRO
80	11	21	17286	N18 E47	277	1100	2.5		N15 E57				M	60	6	CRO
80	11	22	17286	N19 E31	277	900	3.0									
80	11	23	17286	N21 E21	274	800	3.0									
80	11	24	17286	N20 E05	279	500	3.0									
80	11	30	17286	N23 W69	273	200	2.0									

HALE REGION 17288 CMP DATE 26.1 REUTRN OF REGION 17228 ROTATIONS 4 AND 3

			CALCIUM PLAGE DATA						SUNSPOT DATA							
YR	MO	DA	HL NO.	LAT CMD	L	AREA	INT	MW NO.	LAT CMD	L	MAG.	H	STA	AREA	CNT	CLASS
80	11	21	17288	N14 E60	264	400	3.0	21902	N15 E60	265	(B)	4	B	40	3	CSO
80	11	22	17288	N14 E45	263	900	3.0	21902	N13 E47	265	(B)	3	H	50	8	DAO
80	11	23	17288	N14 E32	263	1000	3.0	21902	N13 E34	264	(B)	3	H	50	8	DAO
80	11	24	17288	N14 E18	266	700	3.0	21902	N13 E20	265	(AP)	3	H	30	6	BXO
80	11	30	17288	N15 W62	266	400	2.5									

HALE REGION 17287 CMP DATE 26.3 RETURN OF REGION 17232 ROTATION 2

			CALCIUM PLAGE DATA						SUNSPOT DATA							
YR	MO	DA	HL NO.	LAT CMD	L	AREA	INT	MW NO.	LAT CMD	L	MAG.	H	STA	AREA	CNT	CLASS
80	11	20	17287	S03 E76	261	200	2.5									
80	11	21	17287	S03 E62	262	100	3.0									
80	11	22	17287	S03 E47	261	100	2.0									
80	11	23	17287	S03 E31	264	100	2.5									
80	11	24	17287	S03 E20	264	300	2.5		S06 E29				P	20	4	AXX

HALE REGION 17289 CMP DATE 27.0

			CALCIUM PLAGE DATA						SUNSPOT DATA							
YR	MO	DA	HL NO.	LAT CMD	L	AREA	INT	MW NO.	LAT CMD	L	MAG.	H	STA	AREA	CNT	CLASS
80	11	21	17289	S08 E75	249	300	2.0									
80	11	22	17289	S08 E58	250	200	2.5									
80	11	23	17289	S06 E44	251	200	2.5									
80	11	24	17289	S06 E29	255	200	2.5		S05 E35				R	30	3	BXX
80	11	26	17289					21907	S10 W01	260	(B)	3	H	30	3	DSO
80	11	28	17289					21907	S10 W28	260	(BF)	2	H	50	5	DAO
80	11	30	17289	S07 W53	257	200	2.5									
80	12	1	17289	S07 W70	260	300	2.5									

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HALE REGION 17291 CMP DATE 27.1 RETURN OF NORTHERN PART OF 17228 ROTATIONS 4 AND 3

CALCIUM PLAGE DATA

YR	MO	DA	HL NO.	LAT CMD	L	AREA	INT
80	11	21	17291	N20 E72	252	700	3.0
80	11	22	17291	N19 E56	252	300	2.5
80	11	23	17291	N20 E44	251	300	2.5
80	11	24	17291	N22 E33	251	500	3.0
80	11	28	17291				
80	11	29	17291				
80	11	30	17291	N20 W49	253	800	3.0
80	12	1	17291	N20 W66	256	400	3.0
80	12	2	17291	N23 W72	250	500	3.0

SUNSPOT DATA

MW NO.	LAT CMD	L	MAG.	H	STA	AREA	CNT	CLASS
	N14 E46				H	50	8	DAO
21906	N21 E36	249	(AP)	3	H	10	2	BXO
21913	N21 W20	252	(AF)	3	H	20	1	HSX
21913	N21 W34	252	(AF)	4	H	30	1	HSX
21913	N20 W48	254	(B)	3	H	60	6	CRO
21913	N20 W62	255	(B)	3				
21913	N22 W71	251	AF	1	H	620	9	EKO

HALE REGION 17290 CMP DATE 27.3

CALCIUM PLAGE DATA

YR	MO	DA	HL NO.	LAT CMD	L	AREA	INT
80	11	21	17290	S17 E72	252	600	3.0
80	11	22	17290	S18 E58	250	300	3.0
80	11	23	17290	S17 E44	251	500	3.0
80	11	24	17290	S18 E33	251	300	3.0
80	11	30	17290	S17 W44	248	300	2.5
80	12	1	17290	S17 W62	252	200	2.0
80	12	2	17290	S18 W76	254	300	1.5

SUNSPOT DATA

MW NO.	LAT CMD	L	MAG.	H	STA	AREA	CNT	CLASS

HALE REGION 17293 CMP DATE 28.1

CALCIUM PLAGE DATA

YR	MO	DA	HL NO.	LAT CMD	L	AREA	INT
80	11	24	17293	S32 E38	246	100	3.0
80	11	26	17293				
80	11	28	17293				
80	11	29	17293				
80	11	30	17293	S33 W36	240	600	3.5
80	12	1	17293	S32 W53	243	500	3.0
80	12	2	17293	S33 W63	241	400	3.0
80	12	3	17293	S33 W74	237	200	2.0

SUNSPOT DATA

MW NO.	LAT CMD	L	MAG.	H	STA	AREA	CNT	CLASS
	S32 E42				H	10	2	BXO
21908	S32 E17	242	(B)	3	H	60	7	DRO
21908	S32 W09	241	(B)	3	H	60	9	DAO
21908	S32 W22	240	(B)	3	H	10	5	BXO
21908	S34 W34	240	(AF)	3	H	10	1	AXX

HALE REGION 17294 CMP DATE 28.2 RETURN OF REGION 17229 ROTATION 2

CALCIUM PLAGE DATA

YR	MO	DA	HL NO.	LAT CMD	L	AREA	INT
80	11	28	17294				
80	11	29	17294				
80	11	30	17294	N17 W34	238	3100	3.5
80	12	1	17294	N17 W48	238	3600	3.0
80	12	2	17294	N17 W72	250	3500	3.5
80	12	3	17294	N16 W79	242	1700	3.5
80	12	4	17294	N17 W88	231	500	2.5

SUNSPOT DATA

MW NO.	LAT CMD	L	MAG.	H	STA	AREA	CNT	CLASS
21914	N15 W05	237	(B)	5	H	220	20	EKO
21914	N17 W20	238	(B)	5	H	370	20	EKI
21914	N16 W33	239	(D)	5	H	790	21	EKI
21914	N17 W47	240	(B)	5				
21914	N17 W60	240	(B)	4	H	620	9	EKO
21914	N17 W74	240	(B)	4	H	500	5	DKO
	N16 W80				H	80	1	HKX

HALE REGION 17292 CMP DATE 28.6

CALCIUM PLAGE DATA

YR	MO	DA	HL NO.	LAT CMD	L	AREA	INT
80	11	22	17292	N20 E78	230	300	2.5
80	11	23	17292	N21 E65	230	200	2.5
80	11	24	17292	N19 E50	234	500	3.0
80	11	26	17292				
80	11	30	17292	N20 W27	231	400	3.0
80	12	1	17292	N23 W38	228	400	3.0
80	12	2	17292	N23 W52	230	300	3.0
80	12	3	17292	N21 W70	233	400	3.0

SUNSPOT DATA

MW NO.	LAT CMD	L	MAG.	H	STA	AREA	CNT	CLASS
21905	N21 E67	231	(AP)	3				
21909	N21 E28	231	(B)	3	H	10	5	BXO
21919	N21 W28	234	(BP)	3	H	50	6	DRO
21919	N21 W42	235	(B)	3				
21919	N21 W57	237	AP	1	H	620	9	EKO
	N17 W73				H	500	5	DKO

REGIONS OF SOLAR ACTIVITY

NOVEMBER 1980

HALE REGION 17292 (CONT) CMP DATE 28.6

				CALCIUM PLAGE DATA						SUNSPOT DATA							
YR	MO	DA	HL NO.	LAT	CMD	L	AREA	INT	MW NO.	LAT	CMD	L	MAG.	H	STA	AREA	CNT	CLASS
80	12	4	17292	N23	W78	229	300	2.0		N19	W86				B	160	1	HHX

HALE REGION 17295 CMP DATE 30.4

				CALCIUM PLAGE DATA						SUNSPOT DATA							
YR	MO	DA	HL NO.	LAT	CMD	L	AREA	INT	MW NO.	LAT	CMD	L	MAG.	H	STA	AREA	CNT	CLASS
80	11	26	17295						21910	N15	E49	210	(B)	4	H	140	9	DAO
80	11	28	17295						21910	N12	E22	210	(BY)	4	H	80	10	DAO
80	11	29	17295						21910	N12	E08	210	(B)	4	H	100	21	DAI
80	11	30	17295	N14	W05	209	1700	3.0	21910	N13	W05	211	(B)	4	H	130	15	EAI
80	12	1	17295	N14	W22	212	2100	3.0	21910	N12	W19	212	(B)	4				
80	12	2	17295	N14	W34	212	1900	3.5	21910	N12	W32	212	(BY)	4	H	120	8	DSO
80	12	3	17295	N14	W48	211	1100	3.0	21910	N12	W46	212	(BP)	5	H	100	7	CAO
80	12	4	17295	N14	W58	209	1500	3.0		N13	W60				H	60	1	HAX

DAILY CALCIUM PLAGE INDEX

NOVEMBER 1980

YR	MO	DAY	INDEX	YR	MO	DAY	INDEX	YR	MO	DAY	INDEX
80	11	1	69.9	80	11	11	*	80	11	21	42.6
80	11	2	64.6	80	11	12	*	80	11	22	34.5
80	11	3	66.3	80	11	13	41.3	80	11	23	31.9
80	11	4	62.6	80	11	14	42.5	80	11	24	24.5
80	11	5	73.2	80	11	15	39.4	80	11	25	*
80	11	6	68.9	80	11	16	35.4	80	11	26	*
80	11	7	58.8	80	11	17	*	80	11	27	*
80	11	8	69.9	80	11	18	39.4	80	11	28	*
80	11	9	53.8	80	11	19	36.1	80	11	29	*
80	11	10	54.9	80	11	20	39.7	80	11	30	55.1

* NO OBSERVATIONS

SUDDEN IONOSPHERIC DISTURBANCES

NOVEMBER 1980

DAY	UNIVERSAL TIME START	END	MAX	IMP	WIDE SPREAD INDEX	NUMBER OF STATION REPORTS BY TYPE SWF	SCNA	SEA	SPA	LF-SPA	SES	SFD	KNOWN FLARE	HALE REGION
01	0126	0205	0134	1-	3	1			2				*	
01	1917	2000	1924	1-	5	1			2		7		1917	17244
01	2330	0011	2343	1-	1				1				NF	
02	0207	0325	0214	1-	1				1				0207	17236
02	1045	1130	1056	3	5	1		1	2		1		1057E	17236
02	1418	1435	1420	1-	3						2		1419	17226
02	1606	1620	1607	1	3						6		1603	17236
02	1655	1733	1659	1	3						7		1655	17244
02	1905	1928	1909	1	3						4		1905	17226
02	2359	0115	0009	1	5	2			2		1		2355	17240
03	0157	0309D	0208	2+	5	3		1	3		1		NF	
03	0309E	0531	0344	3	3	1			1				NF	
03	0758	0830	0803	2+	3				1	1			*	
03	1203	1240	1207	1	3	1				1	2		1206	17240
03	1356	1430	1402	3	5	2				1			1352	17238
03	1952	2045	1958	2	3						6		*	
04	0112	0400	0203	2	3	2			2		1		NF	
04	0148E	0342	0202	2+	3	2			1		1		NF	
04	0557E	0724	0611	1-	3				2				*	
04	0733	0810	0738	2	5	1		1	2	1	1		NF	
04	0918	1000	0929	2+	5	1		3	1	1	2		*	
04	1103	1135	1105	1	5	2		3	1	1			1104	17236
04	1246	1308	1250	1	3	1		2			2		1245	17238
04	1503	1520	1507	2	5	1				1	8		1506E	17236
05	0248	0319	0250	1-	1			1					0247	17246
05	0449E	0633D	0533	1	1				1				0447	17244
05	0803	1028	0850	2	3			1	1	1			0807	17244
05	0826	0900	0838	2	3	1			1	1			NF	
05	1055	1128D	1108	2+	5	1		4	1	1	2		1157	17238
05	1257	1317	1304	1	3			3			2		*	
05	1337	1430	1348	1	3			2			2		1333	17255
05	1342	1410	1347	2+	5	2		4	1	1	5		1346E	17255
05	1605	1617	1607	1-	3						4		1603	17244
05	1635	1707	1643	2	3						7		NF	
05	1708	1745	1713	1+	3						7		1703	17244
05	1853	1907D	1857	1-	3						4		NF	
05	1934	2030	1948	2+	3	1					7		1937	17255
05	2225	2345D	2238	2+	5	2			1		2		2226E	17244
05	2345E	0012	2348	1-	1				1				2342	17255
06	0026	0056D	0030	1-	3	1			1				NF	
06	0056	0123D	0116	2	3	1			1				NF	
06	0131	0748	0351	2+	3	1			2				*	
06	0221E	0326D	0235	2+	1				1				*	
06	0326E	0625D	0349	3	3	1			1		1		*	
06	0625E	0647D	0632	2+	3	1			1				NF	
06	0647E	0850	0654	2+	5	2		3	1	1	1		0650E	17244
06	1034	1040D	1040	1-	3			1		1	1		*	
06	1140	1145D	1145	1-	3			3		1			*	
06	1200	1205D	1205	1-	3	1		2		1			*	
06	1225	1320	1235	1-	3	3		1		1	1		*	
06	1347	1350D	1350	1-	5	2		2		1	3		*	
06	1406	1420D	1420	1-	5	1		3		1	8		*	
06	1455	1600	1512	2	5	1		5		1	3		*	
06	1725	1816	1730	2+	3						7		NF	
06	1816	1912	1819	2+	3						8		NF	
06	1917	1935D	1925	1-	3						8		*	
06	1940	2024	1955	1-	5	1			1		8		*	
06	2039	2107	2046	1-	3	1			1		4		*	
06	2144	2319D	2232	2+	3	2			1		1		NF	
07	0122	0331D	0212	3	1				1				0126	17255
07	0202	0626	0212	2+	3	2			2		1		0156	17244
07	0412	0440D	0427	2+	1				1				0417	17255
07	0440E	0521D	0501	3	3	2			1		1		0450E	17255
07	0727E	0820	0745	1	3			1		1	1		0725E	17244
07	0934	1000	0937	1-	5	2		3		1	2		0934E	17255
07	1127	1210	1139	1	5	2		3	1	1	1		*	
07	1242	1425	1305	1	5	3		3		1	1		*	
07	1259	1343	1311	1+	3	1					3		1256E	17255
07	1409	1429D	1419	1-	5			3		1	2		*	
07	1435	1510	1440	1-	5	1		2		1	6		1440	17255
07	1535	1707	1540	1+	3						7		NF	
07	1728	1820	1740	2+	5	2					6		1726	17244

SUDDEN IONOSPHERIC DISTURBANCES

NOVEMBER 1980

DAY	UNIVERSAL TIME				WIDE SPREAD INDEX	NUMBER OF STATION REPORTS BY TYPE							KNOWN FLARE	HALE REGION
	START	END	MAX	IMP		SWF	SCNA	SEA	SPA	LF-SPA	SES	SFD		
08	0117	0245	0125	1-	3				2				0119	17244
08	0348	0412	0355	1-	1				1				0350	17244
08	0419	0651	0509	1-	3				2				0421	17244
08	0458E	0544D	0510	1	1				1				0459	17236
08	0715	0740	0718	3	5			3	1	1	1		0717E	17247
08	0901	0930	0904	1-	5	1		3	1	1			0902	17255
08	1124	1140	1125	1-	3			1	2	1			1125	17255
08	1235	1310	1245	2	5			3		1	1		1234	17249
08	1334	1440	1336	3	5	3		4	1	1	5		1333	17244
08	1450	1515	1455	1-	1					1			1447	17249
08	1617	1650	1620	1-	3						8		1614	17244
08	1730	1800	1734	1+	3						7		1729	17247
08	1959	2035	2009	1+	3						7		1957	17236
08	2050	2109D	2054	1-	3				1		3		2047	17246
08	2109E	2126	2114	1-	3				1		3		2109	17244
08	2242	2223	2254	1-	3	1			1		1		2240	17249
08	2330	2350	2333	1-	1				1				2331	17255
09	0056	0200	0105	1	3	2			2		1		0052	17251
09	0203E	0237D	0211	1-	3	1			1				0203E	17255
09	0236	0321	0244	1-	3	2			1				0236	17255
09	0359	0512	0430	1-	3	1			1				0355	17249
09	0428	0444	0431	1-	1	1							0427	17253
09	0535E	0636D	0541	1-	1				1				0534	17247
09	1715	1800	1721	2	3						5		1714	17255
09	1914	2000	1930	2	3						3		1912	17244
09	2143	2203	2150	1-	1				1				2145	17244
10	0300	0520	0308	1	3	1			2		1		0301	17244
10	0805	0830	0810	2	5	1		4	1	1			0805	17255
10	0904	1010	0923	1	3			3	1	1			0854	17247
10	1137	1245	1142	2	5	2		3	1	1	1		1140	17246
10	1607	1743U	1613	2	3	1					7		1606	17255
10	2154	2225	2159	1-	3	1			1		2		2152	17244
10	2303	2321	2306	1-	3				1		1		2305	17255
11	0220	0315	0227	1-	3	1			2				0216	17244
11	0514	0552D	0528	1-	1					1			*	
11	0605E	0720D	0633	2+	1					1			*	
11	0720E	0809	0729	2+	5	1		2	1	1			0718	17255
11	0907	0940	0910	1+	5	3		3	1	1	1		0906	17244
11	1002	1050	1005	2	5	3		3	1	1	2		1003	17255
11	1440	1524	1455	1+	5	1		3			6		1450E	17255
11	1519	1546	1522	1	3						5		1519	17247
11	1539	1550D	1544	2	3						6		NF	
11	1725	1740	1727	1-	3						5		1724	17255
11	1740	1900U	1750	2	3						6		1744E	17246
11	1904	1930	1911	1-	3						4		1859	17244
11	2045	2221	2106	2	3	1			1		4		2042	17244
11	2339	2352D	2352	1	3	2			1		1		2338	17249
12	0022E	0217	0034	1-	1						1		NF	
12	0247	0448D	0258	1	3	2			1				0243	17260
12	0448E	0654	0455	3	3	2		1	1				0446	17247
12	0706	0748	0714	1	3				1		1		0659	17260
12	1101	1130	1107	1	3	1		3		1			NF	
12	1323	1345	1327	1-	1						1		1323	17247
12	1659	1730	1702	1+	3						5		1658	17260
12	1731	1800	1738	1	3						5		1731	17260
12	1840	1920	1845	1+	3						5		1839	17255
12	2151	2222	2155	1	3	1			1		2		*	
12	2234	2335D	2258	2+	5	2			2		2		2232	17260
12	2335E	0247	0112	2+	1				1				2337	17260
13	0303	0406D	0325	2+	5	2			2		1		*	
13	0406D	0504D	0413	1	5	2			1		1		*	
13	0504E	0706	0518	2+	5	2			2		1		*	
13	0939	1100	0943	2	5	3		4		1	1		*	
13	1732	1815	1744	2	3						7		*	
13	1915	2030	1926	2+	3								7	NF
14	0220	0339	0242	1-	3	1			2				*	
14	0346E	0454D	0359	2	3	2			2		1		*	
14	0454E	0605	0504	2	3	1			1		1		*	
14	0637	0715D	0654	3	5	1			2	1			NF	
14	1034	1116	1046	1	3			3					1030	17255
14	1251	1310	1257	1-	1					1			1253	17255
14	1459	1507D	1507	1-	1	1							1459	17255
14	1540	1815	1547D	3	3						7		1544	17255
14	1617	1700	1631	1-	1						1		1617	17268
14	1829	2015	1836	2+	3						7		1829	17255
14	2213	2309	2220	1	3	1			1		2		2213	17255
14	2334	0142	0004	3	3				2		1		NF	

SUDDEN IONOSPHERIC DISTURBANCES

NOVEMBER 1980

DAY	UNIVERSAL TIME START	END	MAX	IMP	WIDE SPREAD INDEX	NUMBER OF STATION REPORTS BY TYPE SWF	SCNA	SEA	SPA	LF-SPA	SES	SFD	KNOWN FLARE	HALE REGION
15	0512	0633	0524	1-	1				1				*	
15	0540E	0658	0550	2	3				2		1		*	
15	0703	0833	0730	2+	3				1	1	1		NF	
15	1307	1330	1312	1-	5	2		3		1	4		1310E	17266
15	1334	1400	1340	1-	5					1	5		1336	17255
15	1410	1456	1420	2	3						6		*	
15	1457	1520	1500	1-	5			1		1	8		*	
15	1520	1803	1545	3	3						7		1520	17255
15	1535	1710	1550	2	3			1			4		1540	17255
15	1801	1837	1803	2	3						8		1802	17255
15	1950	2038D	2011	1	5	2			1		7		*	
15	2111	2133	2116	1-	3				1		6		*	
16	0022	0051D	0028	1-	1				1				NF	
16	0050	0240	0102	2	5	3			2		1		0052E	17255
16	0301	0345D	0316	1	3	1			2				NF	
16	0337E	0444	0344	1+	5	1			1		1		NF	
16	0502	0527D	0510	1	5	1			1		1		0458	17255
16	0527E	0644	0535	2	5	2			1				0458	17255
16	0903	0920	0905	2	5	3		4	1	1			0859	17266
16	1003	1040	1009	1	5	2			1	1			1008	17255
16	1425	1500	1429	1+	5	3		5		1	6		1428	17255
16	1615	1705	1644	2	3						4		NF	
16	1743	1800	1745	1-	3						4		1735	17255
16	1819	1910	1827	1+	3						6		*	
16	2002	2123	2030	2	5				1		7		*	
16	2023	2036U	2028	1	3	2					2		*	
16	2157	2230	2202	1	5	2			1		2		2145	17266
17	0001	0239	0025	1+	5	2			2		1		0002E	17266
17	0450	0716	0512	1	3				2				NF	
17	0541E	0626D	0551	1	5				1		1		0543	17268
17	0813	0840	0820	1	5	2			2		2		0753	17266
17	0918	0950	0921	1	5	1		1	1	1	2		0908	17268
17	1333	1440	1342	2	5	4		4		1	4		1337	17255
17	1430	1500	1435	1	3						3		NF	
17	1544	1604	1546	1-	3						4		1546	17255
17	1747	1837	1805	2	3						2		1753	17268
17	2022	2059	2024	1	3			1			5		2023	17275
17	2359	0208	0025	1	1				1				2357	17266
18	0210	0303	0221	1-	3				2				0210	17268
18	0359	0448D	0430	1	3				2				NF	
18	0448E	0544D	0453	1	5	2			2		1		0446	17274
18	0544E	0626	0547	1-	3				2				NF	
18	0717	0737	0722	1-	5	1			1	1	1		NF	
18	0955	1040	1004	1	5	2		2	1	1	1		0954	17266
18	1113	1135	1118	1	5	2		3	1	1	2		1124	17275
18	1449	1515	1456	1+	5	1		7		1	2		1448	17268
18	2208	2250	2220	1	3				1		1		NF	
19	0028	0057	0038	1-	3	1			1				NF	
19	0145	0252	0150	1-	3	1			1				0144	17279
19	0330	0410	0340	1	3	2			1				0322	17281
19	0433E	0532	0454	2	3	2			1				*	
19	0532E	0640	0545	1	3	1			1				NF	
19	1235	1345	1240	1-	3	1		1		1	1		1236	17268
19	2133	2203D	2147	1+	5	1			1	1	2		2120	17279
19	2203E	2248	2211	1	5	1			1		1		2135	17279
20	0129	0233	0137	1-	5				1		1		NF	
20	0432	0635	0452	2	5	2			1		1		0445E	17281
20	0805	0846	0811	1	5	2			1	1	2		0804	17281
21	0631	0726	0639	1-	3				2				0620	17268
21	0741	0900	0756	1	5	1			1	1	1		0744	17281
21	1000	1030	1003	1+	5	1		3	1	1	2		*	
22	0521	0702	0550	1	5	1			2		1		0533	17285
23	1749	1830	1752	1+	3						8		NF	
23	1840	1940	1907	2	3						5		1842	17281
23	2155	2233	2200	1-	3				1		1		2153	17281
24	0404	0536	0434	1-	1				1				0401	17278
24	1346	1420	1358	1	5	2		3		1	3		1346	17281
25	0228	0333	0237	1-	3			2					NF	
25	0442	0522	0444	1-	1				1				0445	17288

SUDDEN IONOSPHERIC DISTURBANCES

NOVEMBER 1980

DAY	UNIVERSAL TIME START	END	MAX	IMP	WIDE SPREAD INDEX	NUMBER OF STATION REPORTS BY TYPE SWF	SCNA	SEA	SPA	LF-SPA	SES	SFD	KNOWN FLARE	McMATH REGION
26	0253	0349	0258	1-	3	1			1				NF	
26	0758	0810	0804	1-	1					1			0756	17279
26	1605	1645U	1610	1-	3						3		*	
26	1847	1915	1852	1-	3						3		*	
27	0300	0355	0309	1-	1	1							NF	
28	0539	0626	0548	1-	1				1				0540E	17290
28	0939	1050	1003	1	3			1	1	1	1		0939	17307
28	1432	1525	1449	1	5	1		1		1	4		*	
28	2308	2315D	2315	1-	1				1				NF	
29	0056	0203	0109	1-	3	1			2		1		NF	
29	1612	1624	1617	1-	3	1					2		*	
29	2346	0051	0000	1-	3				2				2349E	17305
30	0323	0454	0335	1	3	1			2		1		*	
30	2016	2115	2026	1	3	1					4		2013	17304

PERIODS OF NO OBSERVATIONS:

DATE	TIME (UT) AND STATION	DATE	TIME (UT) AND STATION
13	2327-2357 WWV	20	0000-0700 KA
19	0425-0502 WWV	28	0030-0045 GN
19	2125-2400 KA		

STATIONS REPORTING FOR NOVEMBER 1980:

Agassiz Station, Massachusetts, USA (A-53)	SES	Maui, Hawaii, USA (MI)	SWF
Cleveland, Ohio, USA (A-28)	SES	Missoula, Montana, USA (A-31)	SES
Darmstadt, GFR (DA)	SWF	Panska Ves, Czechoslovakia (PU)	SWF, SEA
Ft. Riley, Kansas, USA (A-41)	SES	Paterson, New Jersey, USA (A-46)	SES
Glenorchy, Tasmania, Australia (GN)	SWF	Portage, Michigan, USA (A-51)	SES
Hiraiso, Japan (HI)	SWF	Preston, UK (LO)	SEA
Hobart, Tasmania, Australia (TA)	SEA	Sofia, Bulgaria (SF)	SEA
Houston, Texas, USA (A-50)	SES	St. Cloud, Minnesota, USA (SC)	SES
Huancayo, Peru (HU)	SWF	Tavares, Florida, USA (A-49)	SES
Inubo, Japan (IN)	SPA	Thornwood, New York, USA (A-48)	SES
Kasuagi, Japan (KA)	SPA	Trenton, New Jersey, USA (NJ)	SES
Kuhlungsborn, GFR (KU)	SEA, SPA	Upice, Czechoslovakia (UI)	SEA
Lake Hiawatha, New Jersey, USA (A-32)	SES	Valley Cottage, New York, USA (A-1)	SES
Latrobe, Pennsylvania, USA (A-19)	SES	Vsetin, Czechoslovakia (VS)	SEA
Louisville, Kentucky, USA (A-26)	SES	West Patterson, New Jersey, USA (A-46)	SES
Mahwah, New Jersey, USA (A-5)	SES	Zilina, Czechoslovakia, USA (ZL)	SEA

SIDs BY HALE REGION

NOVEMBER 1980

Region	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30
17226		1																												
17236		4	2					2																						
17238			1	1	1																									
17240		1	1																											
17244	1	1			5	1	3	6	2	2	4																			
17246					1					1	1																			
17247								2	1	1	1	2																		
17249								3	1		1																			
17251									1																					
17255					4		6	3	4	3	4	1		6	4	6	2													
17260												6																		
17266															1	2	3	1												
17268														1			3	2	1		1									
17274																		1												
17275																	1	1	1											
17278																								1						
17279																			3							1				
17281																				2	1									
17285																						1	2	1						
17288																									1	1				
17290																												1		
17304																														1
17305																													1	
17307																												1		
NO FLARE	1		2	3	3	6	1					2	1	2	1	4	2		2	1			1		1	1	1	1	1	
NO FLARE PATROL	1		2	2	1	13	2				2	1	5	3	6	3		4	1		1					2		1	1	
EVENT TOTALS	1	7	2	3	11	1	9	16	9	7	11	9		7	5	8	9	5	5	2	2	1	3	2	1	2		2	1	1

SOLAR RADIO EMISSION
SPECTRAL OBSERVATIONS

NOVEMBER 1980

DAY	TIMES OF OBSERVATION		STATION	EVENTS									SPECTRAL TYPE
				DECIMETRIC BAND			METRIC BAND			DEKAMETRIC BAND			
	START UT	END UT		START UT	END UT	INT	START UT	END UT	INT	START UT	END UT	INT	
01	0000	0715	CULG				0019	0409					IIIN,W
			LEAR				0021.1	0021.3	1				III
			CULG				0051	0643	1				IIIN
			LEAR				0100.8	0101.7	1				V
			CULG	0115	0115.5								IIIG,W
			CULG				0115	0115.5	1				IIIG
			LEAR				0123.7	0124.0	1				III
			CULG							0124			IIIB,W
			CULG				0124		1				IIIB
			CULG				0133	0133.5	2	0133	0133.5	3	IIIB
			LEAR				0133.1	0133.7	2				V
			LEAR				0155.8	0156.3	1				CONT
			CULG				0156		1	0156		1	IIIB
			CULG				0321.5		2	0321.5		2	IIIB
			LEAR				0321.7	0322.0	2				III
			LEAR				0335.9	0336.3	1				CONT
			CULG				0409	0515					IIIS,W
			CULG	0506.5		1	0506.5	0507	2				IIIG
			CULG				0515	0715					IIIN,W
			CULG	0545	0625								IN,W
			CULG	0625	0715								IS,W
	0640	1530	DWIN										
			LEAR				0640.0	0645.1	2				CONT
			CULG				0643		2				IIIG
			CULG				0644.5		2				IIIB
	0720	1504	BLEN										
			BLEN				0720 E	1504 D	1				I,DC,C
			LEAR				0722.5	0724.4	1				CONT
	0645	0904	WEIS				0723.7	0724.3	2				IIIG,U
			WEIS				0739	1542	2				IN
			BLEN				0750.6	0750.8	1				IIIG
			WEIS				0808.2	0808.4	1				IIIB
			WEIS				0823.2	0823.3	1				IIIB
			WEIS				0826.5	0827.3	2				IIIG
			LEAR				0827.0	0827.4	1				V
			BLEN				0853.2	0901.4	2				IIIG
			WEIS				0853.5	0853.7	2				IIIG
			BLEN				0915.3	0915.5	1				IIIG
			BLEN				0927.7	0932.8	3				IIIGG
			LEAR				0927.9	0928.5	1				CONT
			BLEN				1104.1	1108.0	2				IIIG
	1140	1542	WEIS				1107.7	1108.4	3				IIIG
			WEIS				1132.7	1132.8	1				IIIB
			BLEN	1152.7	1153.6	2	1153.1	1157.6	3				IIIGG
			WEIS				1153.0	1154.4	3				IIIGG
			WEIS				1156.6	1157.7	2				IIIG
			WEIS				1220.9	1221.1	2				IIIB
			WEIS				1238.7	1239.1	2				IIIG
			WEIS				1241.2	1242.8	2				IIIG
			WEIS				1258.4	1300.7	2				IIIG
			WEIS				1319.3	1319.8	2				IIIG
			BLEN	1322.2	1322.8	1	1322.2	1322.8	3				IIIGG
			WEIS				1322.3	1322.6	2				IIIG
	1335	2340	HARV				1335	1700	2				I
			HARV				1355		2				IIIG
			WEIS				1355.0	1356.6	2				IIIG
			HARV				1418	1420	3				IIIGG
			WEIS				1418.7	1420.3	3				IIIG
			BLEN	1449.0	1449.2	2							IIIG
			HARV				1555	1559	3				IIIG
			HARV	1658		1	1658		2				IIIG
			HARV				1700	2000	3				I
			HARV	1843		1	1840	1843	3				IIIGG
			PALE				1916.0	1920.8	2				V
			HARV				1917	1919	3				IIIGG,V
			SGMR				1918.0	1919.1	1				V
			HARV				2000	2340	2				I
			CULG				2016	2400	1				IS,C,DC
	2016	2400	CULG				2016	2116.5					IIIS,W
			CULG	2016	2400	1							IS

SOLAR RADIO EMISSION
SPECTRAL OBSERVATIONS

NOVEMBER 1980

DAY	TIMES OF OBSERVATION		STATION	EVENTS									SPECTRAL TYPE
				DECIMETRIC BAND			METRIC BAND			DEKAMETRIC BAND			
	START UT	END UT		START UT	END UT	INT	START UT	END UT	INT	START UT	END UT	INT	
01			CULG				2033	2304	1				IIIN
			HARV				2117		2				IIIG
			PALE				2117.7	2128.3	2				CONT
			HARV				2121	2128	3				IIIGG
			CULG	2127	2128	1	2116.5	2128	2	2123	2128	1	IIIS
			CULG				2128	2241					IIIS,W
			HARV				2245	2247	2				IIIG
			PALE				2245.0	2307.4	2				CONT
			CULG	2250.5	2257	1	2241	2307	2	2250.5	2307	2	IIIS
			HARV	2252	2257	1	2251	2257	3				IIIGG
			HARV				2301	2308	2				IIIGG
			CULG				2307	2400					IIIS,W
02	0000	0715	CULG	0000	0045								IS,W
			CULG				0000	0050					IS,C,W
			CULG				0000	0715					IIIS,W
			CULG				0001	0558	1				IIIN
			CULG				0009	0010	2	0009	0009.5	2	IIIG
			CULG	0045	0245	1							IS
			CULG				0050	0715	1				IS,C,DC
			PALE				0141.5	0145.3	2				V
			LEAR				0141.8	0145.0	2				CONT
			CULG	0142	0144.5	1	0139	0145	2	0139	0145	2	IIIGG
			CULG				0153	0154.5	2				SLOW DRIFT
			CULG				0153	0154.5	2				IIIGG
			LEAR				0153.5	0154.3	2				V
			PALE				0153.6	0339.0	1				B
			CULG							0154	0154.5		IIIG,W
			CULG	0245	0715								IS,W
			CULG				0601		2				IIIB
			CULG	0603.5		2							IIIB
	0647	1523	WEIS				0651	1522	2				IN,DC
	0735	1503	BLEN										
			BLEN				0735 E	1503 D	1				I,DC,C
			WEIS				0735.7	0736.6	2				IIIG
			WEIS				0742.6	0747.2	3				IIIGG
	0640	1530	DWIN	0744.8	0746.8	2							IIIG
			BLEN	0744.9	0746.8	2	0743.5	0752.8	3				IIIGG
			WEIS				0753.3	0753.5	2				IIIG,U
			WEIS				0805.0	0805.3	2				IIIG
			WEIS				0834.6	0840.7	1				IIIG
			WEIS				0948.6	0948.7	1				IIIB
			WEIS				0954.6	0954.8	1				IIIB
			WEIS				1017.8	1019.8	2				IIIG,U
			BLEN				1018.2	1019.8	2				IIIG
			WEIS				1049.3	1051.3	2				IIIGG
			WEIS				1108.9	1109.8	1				IIIB
			WEIS				1113.3	1114.3	1				IIIG
			BLEN	1114.3	1114.4	2	1114.3	1114.4	2				IIIG
			WEIS				1118.8	1120.3	3				IIIG
			BLEN				1119.2	1119.4	2				IIIG
			BLEN	1120.5	1120.6	1							DCIM
			WEIS				1124.3	1125.3	3				IIIG
			WEIS				1140.9	1141.3	2				IIIG
			WEIS				1147.9	1142.2	2				IIIB
			BLEN				1159.9	1200.1	2				IIIG
			WEIS				1232.3	1232.7	1				IIIG
			WEIS				1234.2	1236.8	1				IIIG,U
			WEIS				1310.7	1314.7	3				IIIG
			BLEN				1318.4	1318.5	1				IIIB
			WEIS				1319.6	1319.7	1				IIIB
			WEIS				1324.3	1329.6	2				IIIGG
	1335	2340	HARV				1335	2337	2				I
			WEIS				1359.3	1359.4	1				IIIB
			WEIS				1403.7	1405.4	3				IIIG
			HARV				1405	1845	2	1751	2336	1	IIIN
			WEIS				1407.7	1408.3	2				IIIG
			WEIS				1418.3	1427.2	3				IIIGG/V
			BLEN				1418.4	1419.5	2				IIIGG
			SGMR				1418.6	1419.6	2				V

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02			HARV	1419		1	1419	1422	3	1419	1422	1	IIIG,V
			WEIS				1452.9	1453.0	1				IIIB
			WEIS				1457.3	1457.5	2				IIIG
			WEIS				1459.6	1501.7	3				IIIG
			BLEN				1459.7	1459.8	1				UNCLF
			HARV				1500		3				IIIG
			WEIS				1510.6	1510.7	1				IIIB
			WEIS				1512.6	1512.7	1				IIIB
			WEIS				1514.6	1514.7	1				IIIB
			HARV				1522	1523	3				IIIG,U
			WEIS				1522.4	1522.6	3				IIIG,U
			HARV				1538	1539	3				IIIG
			HARV	1622	1623	3	1622	1623	3				IIIG
			PALE				1653.0	0338.0	1				B
			HARV	1658	1659	3	1654	1659	3	1658	1659	1	IIIGG,V,U
			HARV	1721		1	1721		3				IIIG
			HARV				1814	1816	3	1814	1816	1	IIIG,U
			SGMR				1814.3	1815.0	1				V
			HARV				1839	1840	3	1839	1840	1	IIIG,V
			SGMR				1849.3	1849.6	1				III
			HARV	1852	1856	2	1853	1856	3	1854	1855	1	IIIGG
			HARV	1907		3	1907	1915	3				IIIGG
			CULG	2016	2400	1							IS
			CULG				2016	2400	1				IS,C,DC
			CULG				2016	2255					IIIS,W
	2016	2400	CULG				2016	2100	1				IIIN
			CULG				2016.5		1				RS,DP
			CULG				2018.5	2019	2				IIIG
			HARV				2019	2026	2				IIIG
			CULG				2021		2				IIIB
			CULG				2025	2025.5	2				IIIG
			CULG				2044						DP,W
			CULG	2202.5	2203.5	2							IIIGG
			HARV	2203	2204	3	2203	2204	3				IIIG
			PALE				2245.0	2307.4	2				CONT
			CULG				2255	2400					IIIN,W
			CULG	2353	2400	1							IIIN
03	0000	0715	CULG	0000	0006	1							IIIN
			CULG				0000	0715	1				IS,DC
			CULG	0000	0715								IS,W
			CULG	0002	0002.5	2							IIIG
			CULG	0003.5	0004.5	2	0003.5	0004.5	2				IIIG,U
			CULG							0004	0018		SWF,W
			CULG				0005	0715					IIIN,W
			CULG	0158.5	0200	1	0158.5	0203	3	0158.5	0202	2	IIIGG,V
			CULG							0200	0240	2	SWF
			CULG				0213	0221	2				II
			CULG	0231	0231.5	3	0231	0231.5	3	0231.5	0232	2	IIIG
			CULG	0253		3							IIIB
			CULG	0332	0335	1							IIIN
			CULG	0337.5	0341	2	0339	0342	3	0339	0342	2	IIIGG,Z
			CULG							0338	0355	2	SWF
			CULG				0345	0346	1				POSS II
			CULG	0527	0527.5	2							IIIG
			CULG				0548		1				IIIB
			CULG	0656	0702	2							IIIN
	0737	1502	BLEN				0737 E	1348	1				I,DC,C
			WEIS				0737.0	1242.0	2				IN
	0648	1253	WEIS				0903.3	0903.5	2				IIIG
			WEIS				1016.7	1017.2	2				IIIG
			BLEN				1052.2	1052.3	2				UNCLF
			WEIS				1110.8	1110.9	1				IIIB
	0725	1430	DWIN	1203.0	1205.6	2							IIIG
			WEIS				1203.0	1205.6	3				IIIGG,DCIM
			BLEN	1203.0	1206.6	3	1203.0	1206.6	3				IIIGG,RS
			WEIS				1228.2	1228.4	2				IIIG
			DWIN	1244.2	1244.4	1							IIIG
			BLEN	1334.6	1334.8	1	1334.6	1334.8	1				IIIG
	1335	2340	HARV				1335	2334	1				IN

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03			BLEN	1355.6	1359.1	3							DCIM
			HARV	1356	1402	1	1357	1405	2				IIIG
			DWIN	1356.2	1359.0	2							IIIG
			BLEN				1356.2	1359.1	3				IIIGG
	1256	1522	WEIS				1356.9	1400.0	2				IIIG
			HARV	1358	1359	2	1400	1409	3			II	
			BLEN				1359.7	1406	3			II	
			WEIS				1401.5	1409.0	3			II	HARM,H
			WEIS				1419.2	1419.3	2				IIIB
			WEIS				1449.6	1449.8	1				IIIG
			WEIS				1452.2	1452.5	1				IIIG
			WEIS				1456.7	1459.1	3				IIIG
			HARV				1457	1458	3				IIIG
			BLEN	1457.1	1501.8	1	1457.1	1501.8	2				DCIM
			WEIS				1500.7	1502.1	2				IIIG
			WEIS				1513.6	1514.3	1				IIIG
			WEIS				1516.5	1516.8	2				IIIG
			HARV	1529	2138	1	1450	2136	1				IIIN
			HARV				1630	1633	3				IIIGG
			HARV	1705	1708	3	1704	1708	3				IIIGG
			CULG	2017	2400								IN,W
			CULG				2017	2400					IIIN,W
	2017	2400	CULG				2017	2305	1				IS,DC
			CULG	2023	2100	1							IIIN
			CULG	2032	2033	2	2032	2032.5	2				IIIG
			HARV	2032		2	2032	2033	3				IIIG
			CULG				2039	2211	1				IIIN
			HARV				2053	2057	2				IIIG
			CULG				2055.5	2056	2				IIIG
			CULG				2205.5	2206	2				IIIB,U
			HARV				2206		2				IIIG,U
			CULG				2305	2400					IS,W
			CULG				2325	2400					IIIS,W
04			CULG				0000	0715					IIIN,W
	0000	0715	CULG				0000	0715					IS,W
			CULG				0029	0035	1				IIIGG
			CULG	0103	0715								IN,W
			CULG							0154	0215	1	SWF
			CULG				0218.5	0219	2				IIIG
			CULG				0228		1				IIIB
			CULG	0249.5	0250	1	0249.5	0250	1				IIIG
			CULG				0429.5						RS,DP,W
			WEIS				0743	1150	1				IN
	0745	1500	BLEN				0745 E	1500 D	1				I,DC,C
			BLEN				0755.7	0755.9	2				IIIG
	0650	1520	WEIS				0755.7	0756.1	2				IIIG
			BLEN	0759.6	0759.8	2							DCIM
			BLEN	0845.3	0845.4	1							DCIM
			BLEN	0940.9	0946.0	2							DCIM
			WEIS				1044.8	1045.0	2				IIIB
			BLEN				1109.5	1111.1	2				IIIGG
			WEIS				1139.6	1140.1	1				IIIG
			BLEN	1226.3	1228.2	1							IIIG
	1002	1530	DWIN	1228.0	1228.3	1							IIIG
			DWIN	1245.7	1249.2	2						IV	P
			BLEN	1245.8	1250.2	3							DCIM
			BLEN	1246.1	1248.2	3	1247.4	1248.8	3				IIIGG
			BLEN	1302	1331	3						IV	
			WEIS				1303.9	1304.8	2				IIIG
			WEIS				1307.7	1308.3	2				IIIG
			DWIN	1311.2	1312.0	1							IIIG
			DWIN	1314.4	1314.6	1							IIIG
	1335	1843	HARV				1337	1842	1				IN,IIIN
			BLEN	1337.6	1345.8	3							DCIM
			DWIN	1340.6	1341.4	1							IIIG
			DWIN	1344.3	1345.6	1							IIIG
			BLEN				1417.6	1417.8	2				IIIG
			HARV				1418		1				IIIG,U
			DWIN	1505.5	1507.8	2							IIIG

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				DECIMETRIC BAND			METRIC BAND			DEKAMETRIC BAND			
	START UT	END UT		START UT	END UT	INT	START UT	END UT	INT	START UT	END UT	INT	
04	2016	2400	CULG	2016	2400	1	2016	2144	1				IS,C
			CULG				2016	2400					IIIN,W
			CULG				2115	2115.5	1				IIIB
			CULG				2144	2245	2				IS,C,DC
			CULG	2155	2302	1							IIIN
			CULG				2245	2400	1				IS,C
			LEAR				2254.4	2254.5	1				III
05			CULG				0000	0715					IS,W
	0000	0715	CULG	0000	0715								IN,W
			CULG				0000	0715					IIIN,W
			CULG				0103		1				IIIB
			CULG				0107	0108.5	2				IIIG,Z
			LEAR				0107.2	0108.9	1				CONT
			PALE				0107.5	0108.5	1				CONT
			CULG	0311.5	0312	1	0311	0312	1				IIIG
			LEAR				0500.2	0507.9	1				CONT
			CULG	0506	0507	1	0505.5	0507	1				IIIG
			CULG				0611	0611.5	1				IIIG
	0645	1530	DWIN	0748.0	0748.4	1							IIIG
	0653	1518	WEIS				0757.0	0758.2	2				IIIG
	0745	0844	BLEN				0757.8	0801.5	2				IIIG
	0919	1502	BLEN	0920.8	0920.9	1							DCIM
			BLEN				0921.0	0921.2	2				IIIG
			BLEN	1110.3	1110.6	1							IIIG
			BLEN				1133.7	1134.8	1				IIIGG
			BLEN	1157.1	1157.3	2	1157.1	1157.5	3				IIIG
			WEIS	1157.2	1157.4	2							IIIG
			BLEN				1215.1	1215.3	2				IIIG,U
			BLEN	1217.7	1220.4	2							IIIG
			DWIN	1338.4	1338.6	1							IIIG
			BLEN	1338.5	1347.1	2	1338.3	1347.0	3				IIIG,U
			DWIN	1345	1353	1						IV	
			WEIS				1345.4	1348.5	3				IIIG,U
			BLEN				1347.2	1351.3	3			II	
			WEIS				1347.3	1354.2	2			II	HARM
			WEIS				1409.3	1418.3	1			II	
	1753	2340	HARV				1753	2320	1				IN
			PALE				1929.2	1929.5	3				III
			HARV	1937			1937		2				IIIG
			HARV				1959		1				IIIB
	2016	2400	CULG	2016	2400		2016	2238					IS,W
			CULG				2016	2400					IIIS,W
			CULG				2033	2400	1				N,RS,DP
			CULG				2035	2400	1				N,DP
			CULG	2135	2135.5	1							IIIG
			HARV				2135		3				IIIG
			CULG	2232	2234	1							UNCLF
			CULG							2234	2243	1	SWF
			CULG				2238	2306	1				IS,C
			CULG				2306	2400					IS,W
			LEAR				2318.7	2318.9	1				III
			LEAR				2338.3	0000.9	1				S
			CULG	2347		1	2347		1				IIIB
			CULG				2351	2352	2				IIIG
			CULG	2351	2352								IIIG,W
06			CULG				0000	0715	1				N,RS,DP
			CULG				0000	0715	1				N,DP
			CULG				0000	0715					IIIS,W
	0000	0715	CULG	0000	0649								IN,W
			CULG				0000	0650					IS,W
			CULG	0034.5	0035	2							IIIG
			LEAR				0039.9	1021.0	1				B
			CULG							0115	0300	1	SWF
			CULG	0135.5			0135.5			0135.5			IIIB,W
			CULG	0149	0149.5	1	0149	0149.5	2				IIIG
			CULG				0325.5		1				IIIB
			CULG							0341	0505	3	SWF
			CULG	0344	0430	3	0346	0435	3			IV	

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06			CULG	0346	0354	3	0346	0435	3				II
			CULG				0349.5		1				IIIB
			CULG	0411.5		2	0411.5		2				IIIB
			CULG							0415	0415.5	1	II
			CULG				0435	0515	2				IV
			CULG	0452	0452.5	1	0452	0452.5	1				IIIG
			CULG	0518	0715								IIIN,W
			CULG	0627	0627.5								UNCLF,W
			CULG				0633	0650	1				N,UNCLF
			CULG	0649	0715	1	0650	0715	1				IS,DC
	0655	0730	WEIS										
			WEIS				0700	1224	1				IN
	0738	1500	BLEN				0744 E	1500 D	1				I,DC
			BLEN	0810.8	0812.3	3	0810.6	0812.3	3				IIIGG
	0650	1540	DWIN	0810.9					2				IIIB
	0739	1517	WEIS				0810.9	0812.3	3				IIIG
			DWIN	0812.1	0812.2	2							IIIG
			BLEN				0900.4	0900.5	1				IIIG
			BLEN	0924.7	0924.8	3	0924.7	0925.2	2				IIIG
			WEIS				0924.7	0925.3	1				DCIM
			DWIN	0924.8		1							IIIB
			BLEN	1021.4	1021.6	1							DCIM
			BLEN				1025.7	1026.0	2				UNCLF
			BLEN	1108.8	1109.2	1							UNCLF
			BLEN				1112.1	1117.7	2				IIIGG,RS
			WEIS				1112.3	1112.6	2				IIIG
			WEIS				1117.0	1117.8	2				IIIG,RS
			WEIS				1309.8	1310.3	2				IIIG
			WEIS				1316.6	1317.8	1				IIIG
			DWIN	1328.0	1329.1	1							IIIG
			BLEN	1328.3	1328.7	1							IIIG
			WEIS				1406.8	1406.9	1				IIIB
			BLEN	1416.2	1416.4	1							DCIM
	1349	2340	HARV				1431	1440	1				I
			DWIN	1501	1538	2							IV F
			HARV	1505	2247	1							IIIN
			WEIS				1507.8	1509.4	3				IIIG
			HARV	1508	1509	1	1508	1509	3				IIIG,U
			HARV	1516	1537	3							IV,Z
			HARV				1522	2002	2				IIIN
			HARV	1626		3							IIIG
			HARV	2011		3							IIIG
			CULG				2016	2400					IIIN,W
	2016	2400	CULG				2016	2340					IS,W
			CULG	2025	2027	1							I
			CULG	2036		1							IIIB
			HARV	2036		3							IIIG
			CULG				2055	2057	1				DC
			CULG	2355	2400								IS,W
07	0000	0715	CULG	0000	0001								I,W
			CULG				0041	0715					IIIN,W
			CULG				0146	0229	1				IS
			LEAR				0205.0	0315.0	1				B
			CULG							0206	0245	3	SWF
			CULG				0229	0300	2				IS,DC
			CULG				0300	0420					IS,W
			CULG	0334	0530								IN,W
			CULG	0530	0551	1							IS
			CULG	0551	0715		0609	0715					IS,W
			CULG	0653	0654								IIIG,W
			LEAR				0656.3	0656.7	1				CONT
	0650	1540	DWIN	0710.6	0711.2	1							IV
			DWIN	0725.8	0727.1	2							IIIG
			WEIS				0726.4	0726.8	1				DCIM
	0740	1455	BLEN				0740 E	1251	1				I,DC,C
			BLEN	1147.4	1147.5	1							DCIM
	0657	1515	WEIS				1258.6	1259.4	1				IIIG
			BLEN	1316.2	1316.8	1							DCIM
			BLEN	1332.3	1332.7	1							DCIM

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				DECIMETRIC BAND			METRIC BAND			DEKAMETRIC BAND			
	START UT	END UT		START UT	END UT	INT	START UT	END UT	INT	START UT	END UT	INT	
07			BLEN	1404.6	1415.2	3							DCIM
			WEIS				1407.5	1407.7	1				IIIB
	1349	2340	HARV	1409	1410	3							IIIG
			WEIS	1409.8	1413.8	2							DCIM
			DWIN	1409.9	1410.5	2							IIIG
	0650	1540	DWIN	1413.7		2							IIIB
			HARV	1415	2143	2							IIIN
			HARV				1433	2325	2				IIIN
			WEIS				1433.3	1434.4	2				IIIG,U
			BLEN	1439.0	1439.1	1							DCIM
			HARV				1520	1521	2	1520	1521	1	IIIG
			HARV				1720	1723	2	1720	1723	2	IIIG
			HARV				1734		2	1734		2	IIIG
			HARV				1742	2320	1				IN
			HARV				1749	1758	2	1749	1758	2	IIIG
			HARV				1905	1907	2	1905	1907	2	IIIG
			PALE				1915.4	2015.1	1				S
			HARV				1956	1957	2	1956	1957	2	IIIG
			PALE				2015.0	0335.0	1				B
			HARV				2016	2018	2	2016	2018	2	IIIG
	2016	2400	CULG				2016	2018.5	3				IIIGG
			CULG	2016	2102								IS,W
			CULG				2019	2400					IIIN,W
			CULG	2039	2039.5	1							IIIG
			CULG	2137	2137.5	1							IIIB
			CULG	2142.5	2143	1							IIIG
			CULG				2144.5	2147.5	1				IIIGG
			CULG				2159		1				IIIB
			CULG				2214		1				IIIB
			CULG	2222	2400								IN,W
			LEAR				2225.2	2226.9	2				CONT
			PALE				2225.3	2227.5	2				CONT
			HARV				2226	2227	3	2226	2227	2	IIIG
			CULG	2227	2227.5	2	2225	2227.5	2	2226.5	2227	1	IIIGG
			LEAR				2256.7	2257.0	1				III
			CULG				2257		2				IIIB
			PALE				2322.8	2325.2	1				V
			CULG				2323	2325	2	2323	2324.5	1	IIIGG
			LEAR				2323.1	2325.4	2				CONT
			CULG				2329	2400					IS,W
			LEAR				2356.8	0000.9	1				CONT
			CULG				2357	2357.5	1				IIIG
08	0000	0715	CULG	0000	0715								IN,W
			CULG				0000	0715					IIIN,W
			LEAR				0017.0	0109.8	1				S
			CULG	0023	0627	1							IIIN
			CULG				0046.5	0047.5	2	0046.5	0047.5	1	IIIG
			CULG				0053	0055	2				IIIG
			CULG				0108	0109.5	1	0108	0108.5	1	IIIG
			LEAR				0137.0	0222.4	1				S
			CULG				0137.5		1				RS,DP
			CULG				0149	0715	1				IIIN
			CULG				0153.5	0156.5	3	0154	0156.5	2	IIIGG
			LEAR				0153.5	0156.4	2				CONT
			LEAR				0306.7	0312.0	1				CONT
			CULG				0310.5	0311.5	2	0310.5	0311.5	1	IIIG
			CULG				0342	0343	3	0342	0343.5	2	IIIG,V
			LEAR				0349.1	0351.1	2				V
			CULG				0436	0630					IS,W
			CULG				0451.5		2				IIIB
			LEAR				0704.0	0708.9	1				CONT
	0658	1100	WEIS				0707.9	0708.8	1				IIIG
			WEIS				0712.9	0713.8	3				IIIG
			LEAR				0712.9	0713.2	2				III
			CULG	0713		1	0713	0713.5	3				IIIG
	0745	1450	BLEN				0745 E	1450 D	1				I,DC
			BLEN	0826.6	0826.7	1							DCIM
			WEIS				0828	1501	2				IN,DC
			BLEN				0857.7	0857.8	1				IIIB

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				DECIMETRIC BAND			METRIC BAND			DEKAMETRIC BAND			
	START UT	END UT		START UT	END UT	INT	START UT	END UT	INT	START UT	END UT	INT	
08			BLEN	0902.2	0902.7	2							DCIM
			BLEN	0928.4	0928.8	1							DCIM
			WEIS				0943.9	0946.3	3				IIIG
			BLEN	1004.1	1004.2	1							IIIB
			WEIS				1012.3	1012.5	1				IIIB
	0650	1530	DWIN	1029.5	1029.7	1							IIIG
			BLEN	1029.5	1029.7	1							DCIM
			DWIN	1042.6	1042.8	2							IIIG
			BLEN	1042.7	1042.8	2							DCIM
			BLEN				1113.4	1113.6	1				IIIG
			BLEN	1123.7	1125.8	2	1123.9	1131.3	2				IIIGG
	1103	1513	WEIS				1124.4	1129.8	2				IIIGG
			DWIN	1149.5	1150.0	2							IIIG
			BLEN	1149.5	1150.0	2							DCIM
			WEIS				1206.3	1213.5	2				IIIGG
			BLEN				1209.8	1211.6	1				IIIGG
			WEIS				1215.9	1217.3	3				IIIG
			WEIS	1243.0	1244.9	1							DCIM
			BLEN	1243.0	1245.4	2	1243.0	1245.0	2				IIIGG
			DWIN	1244.4	1245.5	2							IIIG
			BLEN				1258.5	1301.5	1				IIIG,RS
			DWIN	1320.0	1320.3	1							IIIG
			BLEN	1320.1	1320.3	2							IIIG
			DWIN	1335.7	1337.2	2						IV	
			BLEN	1335.7	1349.5	3						IV	P
	1353	2340	HARV				1353	2340	1				IN
			BLEN	1402.6	1416.7	2	1413.8	1416.7	2				IIIGG
			DWIN	1407.6	1407.8	2							IIIG
			HARV	1414	2314	2							IIIN
			DWIN	1416.5	1416.7	2							IIIG
			BLEN	1436.1	1436.5	1							IIIG
			WEIS				1442.4	1442.6	2				IIIB
			DWIN	1447.4	1456	3							IIIGG
			WEIS				1447.6	1454.0	2				DCIM
			WEIS				1448.8	1449.0	2				IIIB
			HARV				1449	2244	2				IIIN
			HARV	1452	1456	3	1452	1456	3				IIIG
			WEIS				1453.3	1453.4	2				IIIB
			WEIS				1458.4	1458.5	1				IIIB
			HARV				1931		2	1931		2	IIIB
	2016	2400	CULG	2016	2137	1							IS
			CULG				2016	2400					IS,W
			CULG				2016	2400					IIIN,W
			CULG				2122	2326	1				IIIN
			CULG	2137	2400								IS,W
			CULG				2142		2				IIIB
			CULG				2158		2				IIIB
			HARV				2158		2				IIIG
			LEAR				2231.8	2241.8	1				S
			CULG				2236		1	2236.5		1	IIIB
			CULG				2244.5		2				IIIB,U
			LEAR				2323.7	2326.0	1				CONT
09	0000	0716	CULG	0000	0716								IS,W
			CULG				0006	0716					IIIN,W
			LEAR				0017.2	0019.1	2				CONT
			CULG				0018.5		2				IIIB
			PALE				0018.7	0019.1	1				III
			CULG				0026	0432	1				IIIN
			LEAR				0026.3	0026.8	1				CONT
			CULG							0056	0120		SWF,W
			LEAR				0100.2	0102.9	2				CONT
			CULG				0102		2				IIIB,V
			LEAR				0117.3	0118.1	1				CONT
			LEAR				0134.6	0135.3	1				CONT
			CULG	0154	0205	1							IIIN
			CULG	0205	0210.5	1							RS,DC
			LEAR				0320.5	0322.1	1				CONT
			LEAR				0326.7	0328.6	2				CONT
			CULG				0328		2	0328		1	IIIB

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09			CULG				0430.5	0431	2	0431	0431.5	1	IIIG
			LEAR				0430.9	0432.3	2				CONT
			CULG	0517.5	0518.5	1							UNCLF
			CULG				0632.5	0633.5	2				IIIG
			LEAR				0632.6	0633.8	2				CONT
			CULG	0646	0650	1							IIIN
	0655	1530	DWIN										
	0750	1450	BLEN				0750 E	1347	1				I,DC
			LEAR				0757.0	0815.0	1				B
			BLEN				0801.4	0808.8	1				IIIG
	0700	1512	WEIS				0801.6	0817	2				IIIB
			WEIS				0803.7	0804.5	2				IIIG
			WEIS				0819.2	0821.7	2				IIIG
			LEAR				0820.0	0821.6	1				CONT
			BLEN				0854.5	0854.7	1				IIIG
			WEIS				0915.7	0916.7	2				IIIG
			WEIS				1009.5	1009.8	2				IIIG
			WEIS				1019.5	1024.2	3				IIIG
			WEIS				1042.5	1042.7	2				IIIB
			BLEN	1125.1	1125.5	1							DCIM
			WEIS				1132.4	1134.9	2				IIIGG
			WEIS				1138.8	1138.9	2				IIIB
			BLEN	1332.1	1332.5	1							DCIM
			WEIS				1332.2	1332.9	2				IIIG
			WEIS				1357.3	1357.4	2				IIIB
	1353	2340	HARV				1424	2327	1				INW
			WEIS				1453.3	1457.1	2				IIIGG,U
			HARV				1454	1457	2				IIIG
			WEIS				1504.8	1505.8	1				IIIG
			HARV				1620	1623	3	1620	1623	3	IIIG
			SGMR				1639.8	1642.0	1				V
			HARV				1640	1641	3	1640	1641	3	IIIG,V
			HARV				1704	2332	2	1758		1	IIIN
			PALE				1811.8	1813.6	2				CONT
			HARV				1812	1814	3	1812	1814	3	IIIG
			SGMR				1812.3	1812.8	2				III
			HARV				1826	1827	2	1826	1827	2	IIIG
			PALE				1841.6	1841.8	1				III
			HARV				1842	1844	2	1842	1844	2	IIIG
			HARV				1935		3				IIIG
			PALE				2005.3	2006.8	1				V
	2016	2400	CULG				2016	2400					IIIN,W
			CULG				2021	2400					IS,W
			CULG				2032		1				IIIB
			PALE				2032.8	2035.3	1				V
			CULG				2033	2035	2				IIIG,V,U
			CULG	2034	2318								IIIN,W
			PALE				2100.9	2300.0	1				B
			HARV				2101	2102	2				IIIG
			CULG				2101.5	2102	1				IIIG
			CULG				2303		1	2303		1	IIIB
			CULG				2327			2327			IIIB,W
			CULG	2332		2							IIIG
10	0000	0001	CULG	0000	0716								IN,W
	0003	0716	CULG				0000	0716					IS,W
			CULG				0030	0716	1				IIIN
			CULG	0030	0645		0000	0716					IIIN,W
			LEAR				0032.2	0032.3	1				III
			LEAR				0044.1	0049.3	2				CONT
			CULG				0044.5	0046	2	0045	0045.5	2	IIIG
			PALE				0045.4	0048.1	1				CONT
			CULG				0047		2				IIIB
			LEAR				0135.5	0135.8	1				V
			LEAR				0201.9	0203.3	1				CONT
			CULG							0202.5			IIIB,W
			CULG				0209.5	0210	2				IIIB
			LEAR				0209.5	0215.4	2				CONT
			CULG				0210	0212	3	0210.5	0212	3	IIIG,V
			PALE				0210.4	0211.8	2				V

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10			LEAR				0238.5	0242.2	1				CONT
			CULG	0305	0306	1							DC
			CULG				0306.5	0307	2				IIIG
			LEAR				0306.6	0609.4	1				CONT
			CULG				0447.5	0449	2				IIIG,V,U
			LEAR				0447.7	0449.2	2				CONT
			LEAR				0559.0	0631.3	1				S
			CULG				0705.5	0706.5	3				IIIB,U
	0700	1458	WEIS				0705.9	0706.3	2				IIIG
			LEAR				0705.9	1023.0	1				B
			WEIS				0746.9	0750.6	2				IIIG
	0800	1448	BLEN				0800 E	1448 D	1				
			WEIS				0806.0	0809.4	2				IIIGG
	0725	1530	DWIN	0807.0	0809.0	2						IV	
			BLEN	0807.1	0808.5	2	0807.4	0808.8	3				IIIGG,U
			DWIN	0839.0	0845.0	3						IV	
			WEIS				0940.7	0941.3	2				IIIG
			WEIS				0958.7	0958.8	2				IIIB
			WEIS				1008.7	1009.7	2				IIIG
			WEIS				1019.6	1019.7	2				IIIB
			WEIS				1038.4	1040.7	2				IIIGG
			BLEN	1138.8	1205.8	3	1139.5	1144.7	3				IV,P
			WEIS	1138.9	1144.0	2						IV	DM
			BLEN				1139.1	1158.3	3				IIIG
			WEIS				1139.2	1147.5	3				IIIGG/V
			WEIS				1147.6	1158.0	2			II	HARM
			BLEN	1231.3	1235.3	1							DCIM
			WEIS				1246.7	1246.9	2				IIIG
			WEIS				1251.4	1251.6	2				IIIG
			BLEN	1305.4	1305.6	1							DCIM
			WEIS				1332.3	1332.4	1				IIIB
	1352	2340	HARV				1352	2233	1				INW
			BLEN				1353.7	1353.8	1				IIIB
			WEIS				1359.3	1359.4	2				IIIB
			WEIS				1420.5	1420.6	1				IIIB
			HARV				1454		2				IIIB
			WEIS				1455.0	1454.0	1				IN
			HARV				1500		3				IIIG
			HARV				1504	1507	3				IIIG
	1502	1511	WEIS				1504.5	1504.9	2				IIIG
			WEIS				1506.5	1507.7	2				IIIG
			PALE				1805.7	2325.0	1				B
			HARV				1843	1845	2				IIIG
			HARV				1923	1925	3				IIIGG
			CULG				2016	2400					IIIN,W
	2016	2400	CULG	2016	2250		2016	2400					IS,W
			CULG				2114	2336	1				IIIN
			HARV				2123	2124	1				IIIB
			CULG	2123.5		2							IIIB
			CULG				2227.5	2228	1				IIIB,U
			CULG				2228.5	2229	2				IIIB,U
			HARV				2229		2				IIIG
			LEAR				2335.3	2335.5	1				III
11	0000	0716	CULG				0000	0716					IIIN,W
			CULG	0052	0053.5	1							IIIGG
			CULG	0053	0716								IN,W
			CULG				0159.5		2				IIIB
			CULG	0240	0432	1	0158	0630	1				IIIN
			CULG				0325.5	0327	2	0326	0327	1	IIIG,V,Z
			CULG				0550	0551	2				IIIB,V,U
			CULG	0552.5	0553	2	0551.5	0554.5	3	0553	0553.5	2	IIIGG,V,U
			CULG	0625	0628	3							I
			LEAR				0629.6	0712.8	1				S
			CULG				0640.5	0641	3				IIIB,V,U
			LEAR				0640.6	0641.3	2				V
			CULG				0641	0716					IS,W
			CULG				0649	0700	1				DC
			CULG				0711.5	0712.5	2				IIIG,U
	0702	1130	WEIS				0711.6	0712.4	2				IIIG

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11			WEIS				0739.2	0739.3	2				IIIB
			WEIS				0815.5	0817.9	3				IIIG
			LEAR				0815.5	0817.0	3				CONT
			LEAR				0817.1	0820.7	1				CONT
			WEIS				0820.1	0821.2	2				IIIG
	0800	1448	BLEN	0820.1	0820.3	1	0815.7	0820.3	1				IIIG
			WEIS				0829.5	0829.8	2				IIIB
			LEAR				0829.5	0856.6	1				S
			BLEN				0856.3	0856.5	2				IIIG
			WEIS				0856.3	0856.6	3				IIIG
			BLEN	1008.6	1008.8	1							IIIG
	0655	1530	DWIN	1008.6	1008.8	1							IIIG
			WEIS				1009.5	1009.7	2				IIIG
			WEIS				1054.7	1054.8	2				IIIB
			WEIS				1058.1	1102.9	3				IIIGG
			BLEN	1102.4	1102.7	2	1058.8	1110.7	3				IIIGG
			WEIS				1110.3	1110.9	2				IIIG
			BLEN				1131.7	1131.8	2				IIIB
			BLEN	1202.7	1203.0	1							DCIM
	1157	1508	WEIS				1346.8	1348.8	3				IIIGG,U
	1347	2340	HARV				1347	1348	3				IIIG
			BLEN				1347.2	1347.5	1				IIIG
			HARV				1357	1358	1				I
			WEIS				1415.5	1415.8	3				IIIG
			HARV				1416	2305	1				IIIN
			BLEN	1430.3	1430.4	1							IIIB
			WEIS				1434.5	1434.8	2				IIIG
			BLEN				1442.1	1442.2	1				IIIB
			HARV				1507	1510	1				IIIG,U
			HARV				1605	1606	2	1605	1606	2	IIIG
			HARV				1610	1614	2	1611	1614	2	IIIGG
			HARV				1615	1700	3				I
			HARV				1700	1816	1				INW
			HARV	1724	1725	3	1724	1725	3				IIIG
			HARV	1741	1748	3	1742	1748	3	1742	1748	2	IIIGG
			PALE				1741.9	1748.6	1				V
			HARV	1743	1753	3	1747	1753	2			IV	
			HARV				1744	1749	2	1747	1749	2	II
			HARV				1751	1753	2	1751	1753	2	IIIGG
			HARV				1929	1931	3	1929	1931	3	IIIG,V
			PALE				1929.5	1931.0	2				CONT
			SGMR				1959.5	1959.8	1				III
	2016	2400	CULG				2016	2400					IIIN,W
			CULG				2016	2400					IS,W
			CULG				2041	2116	2				N,RS,DP
			CULG				2043	2045	2				IIIG
			CULG				2259	2300	2	2259	2300	2	IIIG,U
			LEAR				2259.0	2259.8	1				V
			CULG				2305.5		1				IIIB
			LEAR				2346.3	2347.2	1				CONT
12	0000	0716	CULG				0000	0531					IIIN,W
			CULG				0000	0716					IN,W
			CULG				0232.5		1				IIIB
			CULG							0251	0300		SWF,W
			LEAR				0439.2	0439.5	1				III
			CULG							0450	0514	3	SWF
			CULG	0453.5	0456	1							CONT
	0700	0915	DWIN										
	0705	1203	WEIS				0739.3	0739.4	1				IIIB
			WEIS				0824.8	0824.9	1				IIIB
	0800	1448	BLEN				0833.3	0833.6	1				IIIG,RS
			WEIS				0938.7	0938.8	1				IIIB
			WEIS				1031.2	1031.7	2				IIIG
			BLEN	1037.7	1038.2	1							IIIG
			WEIS	1152.8	1154.4	2							IIIG
	1005	1220	DWIN	1153.0	1154.1	2							IIIG
			BLEN	1153.1	1154.4	3	1152.6	1153.8	3				IIIGG
			DWIN	1155.9	1156.5	1							IIIG
			BLEN	1155.9	1201.8	3							DCIM

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DAY	TIMES OF OBSERVATION		STATION	EVENTS									SPECTRAL TYPE
				DECIMETRIC BAND			METRIC BAND			DEKAMETRIC BAND			
	START UT	END UT		START UT	END UT	INT	START UT	END UT	INT	START UT	END UT	INT	
12			DWIN	1201.3	1201.8	2							IIIG
			BLEN	1211.6	1211.9	1							DCIM
			DWIN	1211.6	1211.9	1						IV	
			BLEN	1322.7	1324.8	1							IIIG
	1347	2340	HARV				1406	2325	1				INW
	1353	1508	WEIS				1435.9	1436.2	1				IIIG
			HARV				1436	2106	2	2032	2106	1	IIIN
			WEIS				1446.3	1446.6	2				IIIG
			HARV				1551		2				IIIG
			HARV				1554	1555	2				IIIG
			HARV				1746	1747	2	1746	1747	2	IIIG
			PALE				1746.5	1747.1	1				III
			HARV	1822		3	1822		3				IIIG
			HARV	1922		2							IIIG
			HARV	1926		2							IIIB
			CULG				2016	2400					IIIN,W
	2016	2400	CULG				2016	2400					IS,W
			CULG				2032	2034	2	2032.5	2033	1	IIIG,V,U
			PALE				2032.4	2033.8	1				V
			CULG				2036	2037	1				N,RS,DP
			CULG	2054	2400								IS,W
			CULG				2105.5	2107	2				IIIG
			CULG							2244	2309	1	SWF
			CULG				2322.5	2323.5	1				DC
			CULG				2323		1				RS,DP
			LEAR				2343.2	2343.4	1				III
			CULG				2345.5						IIIB,U,W
			CULG							2349	2400		SWF,W
			LEAR				2356.4	2358.1	1				CONT
			CULG				2356.5	2358	1				IIIG
13			CULG				0000	0715					IIIN,W
			CULG				0000	0715					IS,W
	0000	0715	CULG							0000	0009		SWF,W
			CULG				0011		1	0011.5		1	IIIB
			CULG							0035	0135	2	SWF
			CULG				0053	0101	3	0055	0059	3	UNCLF,Z
			CULG	0055.5	0057.5	3							IIIG
			CULG				0126	0127	1				IIIG
			CULG				0233	0234	1				IIIG
			CULG							0314	0330		SWF,W
			CULG				0405.5		1				RS,DP
			CULG				0509.5	0510.5	2				IIIG,U
			CULG	0629.5	0632	1							IIIN
			CULG	0634.5		2	0634.5		1				IIIB
			LEAR				0634.5	0635.1	1				CONT
	0732	1111	WEIS				0810	1458	1				IN
	1139	1506	WEIS				0851.4	0851.5	1				IIIB
	0945	1530	DWIN										
			WEIS				0945.5	0950.6	2				IIIG
	1347	2340	HARV				1347	2332	2				I
	1428	1447	BLEN										
	2016	2400	CULG				2016	2400	1				IS,DC
			CULG				2016	2400					IIIS,W
			CULG				2028	2400	1				N,RS,DP
			CULG	2024	2024.5	1	2024	2024.5	2				IIIG
			HARV				2024		3				IIIG
			HARV				2035	2037	1				IIIG
			CULG	2035	2051								IIIN,W
			HARV				2043		2				IIIGW
			HARV				2047		2				IIIG
			CULG				2047		1				IIIB
			HARV				2049	2050	3				IIIG
			CULG				2049.5		2				IIIB
			CULG				2050.5		1				IIIB
			CULG	2131	2224								IN,W
			LEAR				2329.6	1025.0	1				B
14			CULG				0000	0716	1				N,RS,DP
	0000	0716	CULG				0000	0226					IS,DC,W

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14			CULG				0000	0716					IIIS,W
			CULG							0037.5			IIIB,W
			CULG				0226	0716	1				IS,DC
			CULG	0258	0259.5	1	-						IIIG
			CULG	0300	0339		-						IS,W
			CULG				0324		2				IIIB,U
			CULG	0324.5	0325	2							IIIG
			CULG				0328.5	0329	1	0328.5	0329	1	IIIB
			CULG	0437.5									IIIN,W
			CULG	0538.5	0539	1	0538.5	0539	3	0538.5	0539	1	IIIG,V
			LEAR				0538.7	0539.3	2				V
			LEAR				0557.9	0600.6	2				CONT
			CULG				0558		2				IIIB
			CULG	0559	0559.5	1	0559	0600	2	0559.5	0600	1	IIIG,V
			CULG	0642	0646	1							CONT
			CULG							0648	0657		SWP,W
			CULG				0659.5	0700	1				IIIG
			LEAR				0704.8	0706.3	2				CONT
			CULG				0705	0706	3				IIIG,V,Z
			CULG	0708		1							IIIB,U
	0707	1585	WEIS				0733.6	0733.7	1				IIIG
			WEIS				0742	1458.0	1				IN
	0800	1445	BLEN				0800 E	1445 D	1				I,DC
			WEIS				0802.1	0802.3	1				IIIB
			BLEN				0804.9	0814.8	3				IIIGG,U
			BLEN				0841.3	0842.8	2				IIIG,U
			WEIS				0841.4	0842.8	2				IIIG
			WEIS				0901.8	0902.9	2				IIIG
			BLEN	1002.7	1003.6	2	1002.7	1010.0	2				IIIG,U
			WEIS				1003.4	1003.5	1				IIIB
			WEIS				1004.4	1005.1	3				IIIG
			LEAR				1004.5	1005.2	2				V
			WEIS				1009.7	1010.7	3				IIIG
			BLEN	1031.9	1032.3	1							DCIM
			BLEN				1153.6	1155.3	2				IIIGG,RS
			WEIS				1156.1	1156.2	2				IIIG
			WEIS				1157.6	1157.7	1				IIIB
			BLEN	1207.0	1207.1	1	1207.0	1207.1	1				IIIB
			WEIS				1219.8	1231.5	3				IIIGG/V
			SGMR				1222.9	1224.6	1				B
	0700	1525	DWIN	1225.6		1							IIIB
			BLEN	1225.7	1228.4	3	1223.8	1230.4	3				IIIGG
			DWIN	1227.5	1228.0	1							IIIG
			WEIS				1230.5	1257.4	1				II
			BLEN				1242.5	1243.0	1				IIIG
			BLEN				1321.0	1324.4	1				IIIG
	1348	2340	HARV				1350	2328	2				IN
			BLEN	1357.0	1357.1	1							IIIB
			BLEN				1401.6	1401.7	1				IIIB
			HARV	1517	1518	2	1517	1518	2				IIIG
			CULG				2017	2400	1				IS,DC
			CULG				2017	2400					IIIS,W
			CULG				2017	2400	1				N,RS,DP
	2017	2400	CULG	2017	2400								IS,W
			CULG				2053	2053.5	2				IIIG
			HARV				2053	2054	2	2053	2054	1	IIIG
			CULG				2227			2227			IIIB,W
			HARV				2239	2240	3				IIIG
			CULG	2239.5	2240	1	2239.5	2240	2				IIIG
			CULG	2243.5	2244	1	2243.5	2244	2	2243.5	2244	2	IIIG
			LEAR				2243.7	2244.2	2				V
			PALE				2243.7	2244.0	2				III
			HARV				2244		3				IIIG
			PALE				2305.9	2306.4	2				III
			CULG				2306		1				IIIB
			LEAR				2306.0	2306.5	1				V
			HARV				2317	2320	3				IIIGG
			CULG	2317	2318	2	2317	2318	2				IIIG
			CULG	2319	2320.5	2	2319	2320.5	2				IIIGG
			LEAR				2319.7	2320.6	2				CONT

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14			PALE				2319.7	2320.6	2				III
			CULG	2342.5	2344	1	2343.5	2344	1				IIIG
			CULG	2355.5		1	2355.5		1				IIIB
			CULG							2356	2400	2	SWF
15	0000	0717	CULG							0000	0057	2	SWF
			CULG				0000	0717					IIIS,W
			CULG				0000	0159					IS,W
			CULG				0000	0717	1				N,RS,DP
			CULG	0000	0717								IN,W
			LEAR				0103.0	1026.0	1				B
			CULG				0159	0518	1				IS,DC
			CULG	0207	0207.5	2	0207	0207.5	1				IIIG,U
			CULG	0228	0228.5	2	0228	0228.5	1				IIIG
			CULG	0437	0437.5	1	0437	0437.5	1				IIIG
			CULG				0518	0717					IS,W
			CULG				0538	0541	2				IIIGG,V,U
			LEAR				0538.2	0541.0	1				CONT
			CULG				0610.5		1				IIIB
			CULG	0611.5	0612	1	0611.5	0612	1				IIIG
			CULG				0617		1				IIIB
			CULG	0700.5	0702.5	1							CONT
			CULG	0700.5	0701.5	2	0700.5	0703	2				IIIGG
			LEAR				0701.3	0702.6	2				CONT
			CULG	0703.5	0705	1							IIIGG
	0705	1530	DWIN	0708	0709	1							IIIG
	0709	1457	WEIS				0715.4	0720.2	2				IIIGG
			LEAR				0715.9	0718.4	2				CONT
			CULG	0716	0717	2	0716	0717	2				IIIG
			WEIS				0747.2	0747.3	2				IIIB
			WEIS				0757.8	0758.7	2				IIIG
			WEIS				0817.0	0817.1	2				RS
	0800	1445	BLEN				0817.0	0817.1	2				IIIG,RS
			WEIS				0823.7	0824.5	1				IIIG
			WEIS				0827.8	0829.3	2				IIIG,U
			BLEN	0831.3	0831.4	1	0827.9	0831.4	2				IIIG
			BLEN	0849.2	0849.3	1							DCIM
			BLEN				0852.3	0852.6	2				IIIG
			WEIS				0852.4	0852.6	2				IIIG
			WEIS				0909.7	0912.4	3				IIIG,RS
			BLEN				0910.5	0922.0	2				IIIG,RS
			BLEN	0913.0	0913.8	2							IIIGG,U
			WEIS	0913.1	0913.7	1							DCIM
			WEIS				0918.2	0918.3	1				IIIB
			WEIS				0921.3	0922.0	2				IIIG,RS
			WEIS				0935.4	0935.6	1				IIIB,U
			BLEN	0954.3	0954.4	1							IIIB
			BLEN	1017.7	1025.3	1							IIIG
			WEIS				1045.3	1045.5	1				IIIG
			WEIS				1106.6	1106.8	2				IIIG
			BLEN	1107.2	1107.6	1	1106.7	1106.8	2				IIIG,U
			WEIS				1108.3	1108.5	2				IIIG
			BLEN				1307.7	1307.8	1				IIIG,RS
			BLEN	1308.7	1309.2	1							DCIM
			WEIS				1332.6	1333.5	2				IIIG
			BLEN				1332.7	1332.8	2				IIIG,RS
	1347	2340	HARV				1350		1				IIIB
			BLEN				1350.2	1350.3	1				IIIB
			HARV				1351	2000	1				IN
			WEIS				1351.7	1351.8	1				RS
			WEIS				1413.7	1414.3	2				IIIG
			HARV				1426		2				IIIG
			WEIS				1426.1	1426.6	2				IIIG
			HARV	1517	1520	3	1517	1521	3				IIIGG
			HARV	1543	1546	1							I
			HARV				1637	1638	2	1638		1	IIIG
			HARV	2000	2007	2	2000	2007	3	2004		1	IIIGG
			PALE				2004.0	2004.3	1				III
			CULG				2017	2140					N,RS,DP,W
	2017	2400	CULG				2017	2129					IIIN,W

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15			CULG				2044		1				DP
			CULG	2113	2113.5	1							IIIG
16	0000	0717	CULG				0014	0619					IIIN,W
			LEAR				0014.4	0014.7	1				V
			CULG	0052	0059	1							DCIM
			CULG							0059	0105	1	SWF
			CULG	0101	0107	1							IS
			LEAR				0240.9	0247.3	1				CONT
			CULG				0245	0246	2	0245.5	0246	1	IIIG
			CULG				0332	0547	1				N,RS,DP
			LEAR				0431.8	0433.7	1				V
			CULG				0432	0433.5	1	0432	0433.5	1	IIIG
			CULG							0505	0615	1	SWF
			CULG				0625	0626.5	2				IIIG,V
			LEAR				0625.3	0636.4	2				S
			CULG				0630.5	0636.5	3	0634	0635	1	IIIGG,V,Z
			LEAR				0750.5	0751.0	1				V
	0803	1443	BLEN	0835.7	0835.9	1							DCIM
			BLEN				0837.8	0844.6	2				IIIG,RS
	0732	1502	WEIS				0903.3	0905.2	2				IIIG,RS
			BLEN	0903.3	0907.0	2						IV	P
			WEIS				0906.0	0927.0	3			II	HARM,H
			LEAR				0907.3	0927.0	1			II	
			BLEN	0931.3	0934.7	3	0934.2	0938.0	3				IIIGG,RS
			BLEN	1014.5	1020.9	2	1014.3	1019.7	1				IIIG
			BLEN	1038.4	1038.5	3							IIIG
			WEIS				1330.7	1331.5	1				IIIG
			BLEN				1330.8	1331.5	3				IIIGG,RS
			WEIS				1341.2	1341.4	2				IIIG
	1348	2348	HARV				1348	1415	1				IN
			WEIS				1354.6	1355.2	2				IIIG
			HARV				1516	2252	1				IIIN
			HARV	1741	1742	3	1741	1742	3				IIIG
	2017	2400	CULG				2017	2249					IIIN,W
			HARV	2021	2023	2	2021	2025	2				IIIG
			CULG	2021	2025	1							DCIM
			CULG				2036.5	2037.5	2				IIIB,Z,U
			PALE				2036.8	2037.5	1				III
			CULG				2045	2045.5	1				IIIB,Z
			CULG				2251	2253	2				IIIG,V
			LEAR				2251.5	2252.8	1				CONT
			PALE				2251.7	2252.6	2				V
17	0000	0717	CULG							0004	0037	1	SWF
			CULG	0008	0101	3							CONT
			CULG				0011.5	0013.5	3	0012	0012.5	1	IIIG,V
			LEAR				0011.9	0012.7	2				CONT
			PALE				0011.9	0013.3	2				V
			CULG	0014	0020	1							IIIN
			LEAR				0020.8	0021.1	1				V
			CULG				0021		1				IIIB
			CULG				0037	0041	1				IN
			CULG				0305	0717					IIIN,W
			CULG				0451	0452.5	3	0451	0452	2	IIIG,V
			LEAR				0543.8	0547.5	1				CONT
			CULG	0544.5	0547.5	1	0544	0547.5	1				IIIGG
			CULG	0554	0555.5								I,W
			LEAR				0615.3	0617.1	2				V
			CULG	0615.5	0616	1	0615	0617	2	0615.5	0616	1	IIIG
			CULG				0627	0627.5	2				IIIG
			LEAR				0627.8	0649.2	1				S
			CULG	0642	0651	1							DCIM
			CULG				0642.5	0644.5	1				IIIG
			CULG	0652.5	0653	3	0653		1				IIIG
	0712	1501	WEIS				0731.3	0721.4	1				IIIB
			WEIS				0740.8	0741.0	1				IIIG
	0805		BLEN	0813.6	0819.1	1	0813.6	0827.1	1				IIIGG
			WEIS				0827.0	0828.1	2				IIIG
			WEIS				0853.9	0854.7	3				IIIG

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17	0730	1530	DWIN	0902.8	0903.5	1							IV
			WEIS				0902.9	0903.7	3				IIIG
			BLEN	0903.0	0903.8	1	0902.9	0903.2	1				IIIG,DCIM
			LEAR				0904.3	0905.4	2				CONT
			WEIS				0906.7	0908.6	2				IIIG
			LEAR				0908.1	0912.5	1				CONT
			WEIS				0910.8	0911.7	2				IIIG
			BLEN	0915.7	0922.8	2	0915.7	0922.8	2				DCIM
			DWIN	0916.5	0922.5	1							IV
			BLEN	0918.0	0918.2	2	0918.0	0918.2	3				IIIG
			WEIS				0918.1	0922.4	3				IIIGG
			WEIS				0918.4	0922.4	2				DCIM
			LEAR				0919.0	0919.3	3				III
			LEAR				0920.2	0922.9	1				CONT
			BLEN	0935.3	0936.6	2	0935.7	0941.7	2				IIIGG
			WEIS	0935.4	0936.6	1							IIIG
			BLEN				0953.5	0953.8	1				IIIG
			WEIS				1010.8	1016.5	2				IIIGG
			BLEN				1010.8	1012.8	2				IIIGG
			BLEN				1024.3	1028.7	2				IIIGG,RS
			BLEN	1038.9	1039.1	1	1038.9	1039.0	1				IIIG
			BLEN	1114.1	1115.6	1	1114.1	1115.6	1				IIIG
			WEIS				1132.0	1136.4	3				IIIGG,RS
			BLEN	1134.3	1142.3	2	1134.3	1142.3	2				IV F
			WEIS	1138.0	1139.3	1							DCIM
			WEIS				1142.1	1142.5	2				IIIB
			BLEN				1153.3	1156.3	1				IIIGG,RS
			WEIS				1256.0	1258.2	3				IIIGG
			BLEN	1256.2	1300.7	2	1256.5	1300.5	1				DCIM
			WEIS				1333.6	1334.8	3				IIIGG
	1511	1556	WEIS										
	1757	2320	HARV				1852	2245	1				IN
			CULG				2018	2300					IIIN,W
	2017	2400	CULG				2018	2019	1				IIIG,Z
			CULG	2021	2027.5	1	2026.5	2027	1				IIIG
			HARV	2023	2027	1	2022	2028	3				IIIGG
			CULG				2111		1				IIIB
			CULG				2122	2122.5	2	2122	2122.5	1	IIIB,Z
			CULG				2150	2345					IS,W
			HARV	2227	2228	3	2227	2228	3				IIIG
			HARV				2305		2				IIIG
			CULG	2305	2305.5	1	2305	2305.5	1				IIIG
			HARV				2309	2310	2				IIIGG
			CULG				2309	2311.5	3	2309	2311.5	3	IIIGG,V
			LEAR				2309.1	2311.4	2				CONT
			PALE				2309.2	2310.5	2				CONT
			CULG	2325.5	2326								IIIG,W
18	0000	0716	CULG				0105	0109					IIIN,W
			CULG				0151.5	0152	1				IIIG
			CULG	0409	0409.5	1							I
			CULG	0530.5	0532		0530.5	0531.5					IIIG,W
			CULG				0533.5		1				IIIB
			CULG				0608	0616					IIIN,W
	0810	1440	BLEN				0902.8	0905.4	2				IIIGG
	0801	1216	WEIS				0902.8	0905.5	1				DCIM
			BLEN				0955.5	0955.6	2				IIIB
			BLEN	0956.9	1007.0	2	0957.1	1007.0	1				DCIM
	0735	1530	DWIN	0957.0	1014.5	1							IV
			BLEN	1016.1	1016.2	1							IIIB,U
			BLEN	1038.4	1040.9	2							DCIM
			DWIN	1038.5	1040.3	2							IV
			WEIS				1038.8	1040.7	1				IIIG,DCIM
			BLEN	1038.9	1039.9	3	1038.9	1043.3	3				IIIG,RS
			DWIN	1053	1117	1							IV
			BLEN	1054.8	1057.3	1							DCIM
			BLEN				1054.9	1055.4	2				IIIGG
			BLEN	1115.3	1122.6	1							DCIM
			BLEN				1122.7	1123.9	3				IIIG
			WEIS				1123.3	1124.3	2				IIIG,U

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DAY	TIMES OF OBSERVATION		STATION	EVENTS									SPECTRAL TYPE
				DECIMETRIC BAND			METRIC BAND			DEKAMETRIC BAND			
	START UT	END UT		START UT	END UT	INT	START UT	END UT	INT	START UT	END UT	INT	
18			WEIS				1146.8	1149.8	2				IIIG
	1224	1500	WEIS				1305.4	1310.7	3				IIIGG/V
			BLEN	1305.8	1309.6	3	1305.4	1310.2	3				IIIGG
			SGMR				1305.9	1307.0	1				CONT
			DWIN	1306.0	1306.3	2							IIIG
			WEIS				1324.3	1324.5	1				IIIG
			BLEN	1327.2	1328.3	1							DCIM
			WEIS				1327.2	1329.1	3				IIIG
			DWIN	1359.0	1359.2	1							IIIG
	1348	2340	HARV	1405	1406	3	1405	1406	3				IIIG
			DWIN	1405.5	1406.3	2							IIIG
			WEIS				1405.5	1407.2	3				IIIG
			BLEN	1405.5	1405.6	3	1405.5	1405.6	3				IIIG,RS
			SGMR				1405.6	1406.1	2				CONT
			HARV	1653		3	1651	1655	3	1651	1655	3	IIIGG
			SGMR				1653.1	1653.5	2				CONT
			HARV				1657	1658	1				IIIG
			HARV				1753	1754	2	1753	1754	1	IIIG
			HARV							1833		2	IIIB
			HARV							1837		2	IIIB
	2017	2400	CULG										
19	0000	0717	CULG				0159.5	0200.5					IIIG,W
			CULG				0238						IIIB,W
			CULG				0420	0432.5					IIIS,W
			CULG				0425.5		1				IIIB
			CULG				0429	0638					IS,W
			CULG							0442	0550	2	SWF
			CULG				0504	0620	1				N,DC
			CULG				0513	0717					IIIS,W
			LEAR				0557.2	0604.3	1				CONT
			LEAR				0609.0	0821.0	1				B
			CULG				0630	0717	1				IS,C
			CULG	0656	0717								IN,W
			WEIS				0719	0810	2				CONT
	0715	1500	WEIS				0719	0930	1				IS
	0810	1440	BLEN										
			WEIS				1109.7	1110.1	1				IIIG
			WEIS				1125.7	1125.8	1				IIIB
			WEIS				1356.5	1357.1	1				IIIG
	0715	1500	DWIN	1438.0		2							IIIB
	1348	2340	HARV	1605	1606	3	1605	1607	3	1605	1607	3	IIIGG,V
			SGMR				1605.1	1606.7	2				CONT
			HARV				1608	1610	2	1608	1610	1	IIIG
			HARV				1615	1621	2	1615	1621	2	IIIG
			HARV				1621		2	1621		2	IIIB
			HARV				1746		2	1746		2	IIIG
	2017	2400	CULG				2017	2400					IIIN,W
			HARV				2206		2				IIIB
			CULG				2206	2206.5	3	2206	2206.5	3	IIIG
			LEAR				2206.2	2206.4	1				CONT
			CULG				2302	2302.5	2	2302.5		1	IIIG
			LEAR				2302.0	2302.6	1				CONT
20	0000	0717	CULG				0014	0717		0252	0415		IIIN,W
			CULG				0204		2	0204		1	IIIB
			LEAR				0234.1	0234.3	2				CONT
			PALE				0237.3	0238.5	2				CONT
			CULG				0252	0534	1				IIIN
			LEAR				0252.1	0256.6	1				CONT
			CULG				0253		2	0253		1	IIIB
			CULG				0256.5		2				IIIB
			LEAR				0311.3	0312.8	1				CONT
			LEAR				0340.5	0341.0	2				CONT
			CULG				0340.5	0341	3	0340.5	0341	2	IIIG
			CULG	0341.5		1							IIIB
			CULG	0358	0407								IN,W
			LEAR				0413.5	0415.2	1				CONT
			CULG							0441	0455		SWF,W
			LEAR				0503.4	0503.7	1				V

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20			LEAR				0524.2	0533.8	1				CONT
			CULG				0534	0534.5	2				IIIG
			LEAR				0534.0	0534.5	2				V
	0715	1525	DWIN										
	0738	1457	WEIS				0757.6	0757	1				IIIG
			WEIS				0802.1	0802.3	1				IIIG
	0812	1440	BLEN										
	1347	2340	HARV				1354	1631	1				INW
			HARV				1821	1822	2	1821	1822	2	IIIGG
	2018	2400	CULG				2104	2317					IIIN,W
			PALE				2114.7	2115.5	1				V
			CULG	2115	2115.5	2	2115	2115.5	3	2115	2115.5	3	IIIG
			HARV	2115		3	2114	2115	3	2115		3	IIIG
			CULG				2119.5		1	2119.5		1	IIIB
			CULG				2122	2122.5	1				IIIG
			LEAR				2312.4	2316.5	1				CONT
			CULG				2312.5	2313					DP,W
			CULG				2312.5		1				IIIB
			CULG				2315		1				IIIB
			CULG							2315.5	2316		IIIG,W
			CULG				2315.5	2316	2				IIIG
21	0000	0718	CULG	0004	0718								IN,W
			CULG	0633	0633.5	1							IIIG
	0715	1015	DWIN										
	0814	1440	BLEN										
	0927	1457	WEIS										
	1230	1313	DWIN										
	1348	2340	HARV				1356	2313	1				INW
	0720	0923	WEIS				1423.9	1424.1	1				IIIB
	2018	2400	CULG	2039	2339								IN,W
			CULG				2158						IIIB,W
			CULG	2339	2400	1							IS
22	0000	0718	CULG	0000	0004	1							IS
			CULG	0004	0536								IN,W
			CULG	0536	0635								IS,C,W
			CULG				0540	0718	1				IS,C
			CULG	0541	0545.5	1							DCIM
			CULG				0547	0559	1	0548	0554	1	IIIS
			LEAR				0548.0	0559.0	2				S
			CULG				0551.5	0552	2				IIIG
			CULG							0554	0555	1	POSS II
			CULG				0559	0718					IIIN,W
			LEAR				0559.0	0915.0	1				B
			CULG	0635	0718								IN,W
	0720	1456	WEIS										
			HARV				1531	1532	3	1531	1532	1	IIIGG,U
	2018	2400	CULG				2041	2042					IIIG,W
			CULG				2237						IIIB,W
			CULG				2305.5	2306.5	2				IIIG
			LEAR				2305.9	2306.8	1				V
			CULG				2307.5	2323	1			II	
	1347	2340	HARV				2308	2311	2				UNCL
			LEAR				2318.3	2335.6	1				S
23	0000	0718	CULG	0341	0350								IS,W
	0722	1416	WEIS				0749.5	0749.7	2				IIIB
			WEIS				0823.4	0823.7	1				IIIG
			WEIS				0953.9	0954.3	1				IIIG
			WEIS				1025.2	1025.7	1				IIIG,U
	0957	1440	BLEN				1025.5	1025.7	1				IIIG
			WEIS				1317.4	1318.2	2				IIIG
	1420	1455	WEIS										
	1347	2340	HARV				1842	1844	2				IIIGG
			HARV				1845	1919	3	1848	1913	3	II,H
			PALE				1846.4	1856.4	3			II	
			HARV				1848	1912	2				IIIN
			SGMR				1848.2	1857.1	3			II	
			HARV				1858	1916	2				IVP

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23			HARV	1911	1915	2							IV
			HARV				1927	1952	2				IVP
			PALE				1937.0	0331.0	1				B
			CULG				2033	2307					IIIN,W
	2033	2400	CULG	2033	2230								IN,W
			CULG				2306	2306.5	1				IIIG
24	0000	0719	CULG				0056						IIIB,W
			CULG				0209						IIIB,W
			LEAR				0340.8	0341.0	1				V
			CULG				0341		1				IIIB
	0820	1440	BLEN				0926.8	0926.9	1				IIIG
	0731	1454	WEIS				0926.8	0927.7	2				IIIB
			LEAR				0926.9	0927.1	1				III
			WEIS				1002.3	1002.5	1				IIIB
			WEIS				1014.7	1014.9	2				IIIG
			WEIS				1016.7	1017.1	2				IIIG
			WEIS				1246.9	1247.1	3				IIIB
	0940	1520	DWIN	1345.6	1347.4	1							IIIG
			BLEN	1433.9	1436.9	1							DCIM
	1347	2340	HARV				1554	1555	2	1555		1	IIIG,U
			HARV				1929		1				IIIB
			PALE				1929.7	1933.5	2				V
			HARV				1930	1931	3	1930	1931	3	UNCL
			HARV				1931	1940	3	1931	1940	3	II,IV
			HARV				1940	1951	3	1940	1956	3	II,IV
	2019	2400	CULG				2201	2222	2				II H
			CULG				2204	2225					IIIS,W
			HARV				2206	2220	1				IN
			LEAR				2207.6	2209.1	1				CONT
			CULG	2220.5	2221	1							IIIG
			HARV				2221		1				IIIG
			HARV				2301	2302	1				IIIG
			CULG	2301	2301.5	1							IIIG
			LEAR				2343.9	2344.1	1				III
			CULG				2344		1				IIIB
			CULG				2344.5						IIIB,W
			CULG	2354.5	2355	1							IIIG
			CULG	2355.5	2356	1	2355.5	2356	1				IIIG
			LEAR				2355.9	0033.5	1				S
25	0000	0719	CULG	0000	0000.5	1	0000.5		2				IIIG
			CULG	0001	0001.5	1	0001	0001.5	1				IIIG
			CULG				0033						IIIB,W
			CULG				0033.5		1	0033.5		1	IIIB
			CULG	0138	0139								I,W
			CULG	0231.5	0233	1							I
			CULG	0432.5	0433.5	1	0432.5	0433.5	1	0433		2	IIIG
			LEAR				0432.7	0433.0	1				V
			CULG	0600	0654								IN,W
			CULG	0655	0656	2							IIIG
	0730	1500	DWIN	0853.8	0854.4	1							IIIG
			DWIN	0857.0	0857.9	1							IIIG
			DWIN	0901.8	0902.5	1							IIIG
	0820	1440	BLEN	1029.8	1030.6	1							DCIM
			BLEN				1203.6	1203.8	2				IIIG
	0726	1453	WEIS				1208.7	1208.8	2				IIIG
			BLEN	1301.5	1301.6	2							DCIM
			DWIN	1301.5	1301.6	2							IIIG
			BLEN	1349.1	1349.3	1							IIIG
	1403	2340	HARV				1808	1809	2				IIIB
	2019	2400	CULG	2035	2037								IIIN,W
			CULG				2037	2258					IS,W
			CULG				2037	2039.5					IIIGG,W
			CULG				2041	2106	3				II
			HARV				2042	2054	3	2046	2049	1	II
			CULG				2047	2130					IV W
			HARV				2105	2115	1				INW
26	0000	0719	CULG	0003	0003.5								IIIG,W

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DAY	TIMES OF OBSERVATION		STATION	EVENTS									SPECTRAL TYPE
				DECIMETRIC BAND			METRIC BAND			DEKAMETRIC BAND			
	START UT	END UT		START UT	END UT	INT	START UT	END UT	INT	START UT	END UT	INT	
26			CULG				0151	0151.5					IIIG,W
			LEAR				0151.0	0152.5	1				CONT
			CULG	0634	0644								IS,W
	0733	1208	WEIS										
	0750	1500	DWIN										
	0825	1440	BLEN										
	1213	1453	WEIS										
	1522	2340	HARV				1553		1				IIIB
	2020	2400	CULG	2140	2141								I,W
27	0000	0720	CULG	0041	0046								IN,W
			CULG				0148	0149					IIIG,W
			CULG				0156						IIIB,W
			CULG				0310	0310.5					IIIG,W
			CULG				0415	0540					IS,W
			LEAR				0431.0	0855.0	1				B
			CULG				0549.5						IIIB,W
	0725	1500	DWIN										
	0728	1452	WEIS										
	0825	1440	BLEN	1259.1	1300.5	1							IIIGG
	1400	2340	HARV				2005		1				IIIB
	2020	2400	CULG				2205	2205.5					IIIG,W
28	0000	0636	CULG				0349.5	0350.5	1				IIIG
			CULG				0542	0543.5					I,W
	0825	1440	BLEN				0859.6	0950.2	1				IIIG
	0706	1451	WEIS				0949.7	0950.3	2				DCIM
			WEIS				1002	1450	2				IN
			WEIS				1003.2	1009.7	2				IIIG
			LEAR				1004.6	1005.1	1				CONT
			WEIS				1328.7	1328.9	1				IIIB
	1404	2340	HARV				1405	1439	1				IN
	0725	1500	DWIN	1437.6		1							IIIB
			HARV				1441	1453	3			II	
	2021	2400	CULG	2021	2120								IN,W
			CULG				2034						IIIB,W
			CULG				2325	2333					IIIN,W
29	0000	0720	CULG				0133.5						IIIB,W
			CULG	0206	0720								IN,W
			CULG				0242.5	0243					IIIG,W
			CULG				0243.5	0244		0244			IIIG,W
			LEAR				0243.7	0243.9	1				V
			CULG				0436	0646					IIIN,W
	0631	0945	WEIS										
	0730	1500	DWIN	1044.8	1046.0	1							IIIG
	1005	1450	WEIS				1045.0	1045.4	2				IIIG
	0825	1440	BLEN				1148.5	1159.3	1				I,DC
			WEIS				1243.5	1243.7	1				IIIB
			WEIS				1252.2	1252.4	1				IIIB
	1404	2340	HARV				1440	1441	2				IIIG
			DWIN	1440.5	1441.0	1						IV	
			HARV				1523	2326	1				IN
			HARV	1617	1618	1	1617	1618	2				IIIG
	2020	2400	CULG				2020	2400					IIIN,W
			CULG	2029	2045								IS,W
			CULG	2047.5	2049	2	2048	2048.5	1				IIIG
			HARV	2048	2049	2	2048	2049	3				IIIG
			CULG	2109	2205	1	2109	2155	1				IS
			CULG				2109	2112.5	2	2111	2112	1	IIIGG,V
			HARV				2109	2116	2				IIIGG,U
			PALE				2110.3	2111.8	1				CONT
			CULG				2124.5	2134.5	1			II	
			CULG				2129	2159					IV,W
			CULG				2155	2400					IN,W
			CULG	2205	2400								IS,W
30	0000	0720	CULG				0000	0345					IN,W
			CULG	0000	0508								IS,W
			CULG				0819	0720					IIIN,W

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30			LEAR				0222.5	0224.3	1				CONT
			CULG				0222.5		1	0222.5		1	IIIB
			CULG				0223.5	0224.5	1				IIIG
			CULG				0228.5	0229.5	3	0228.5	0229.5	3	IIIG,V
			LEAR				0228.7	0229.6	3				V
			CULG	0229		1							IIIB
			CULG				0249.5	0250.5	1				IIIG
			CULG				0251		1	0251		1	IIIB
			CULG				0316		1				IIIB
			CULG	0508	0534	1							IS
			CULG	0534	0720								IS,W
			CULG				0536.5		1	0536.5		1	IIIB
			LEAR				0702.8	0716.8	1				S
			CULG				0713		1				IIIB
	0730	1500	DWIN										
			WEIS				0806.1	0806.3	2				IIIG
	0732	1449	WEIS				0816	1449	2				IS
	0825	1440	BLEN	0825 E	1440 D	2	0825 E	1440 D	2				I,DC
			WEIS				1125.2	1125.5	2				DCIM
			BLEN				1125.2	1125.4	2				IIIG
			WEIS				1332.2	1334.9	1				IIIG,DCIM
			BLEN				1332.2	1334.6	2				IIIGG
	1405	2340	HARV				1405	1600	3				I
			WEIS				1435.8	1438.1	3				DCIM
			BLEN	1435.9	1438.0	2	1435.9	1438.0	3				IIIGG
			HARV				1436	1438	3				IIIG
			HARV				1600	2100	1				IN
			HARV				1822	1823	2				IIIG
			HARV				1827		2	1827		2	IIIG
			HARV				1929		3				IIIG
	2020	2400	CULG	2020	2400	2							IS,DC
			CULG				2024	2400					IIIN,W
			HARV				2100	2333	2				I
			CULG				2251.5		1				IIIB
			HARV				2325	2328	3				IIIG
			CULG	2325	2327	2							IIIN

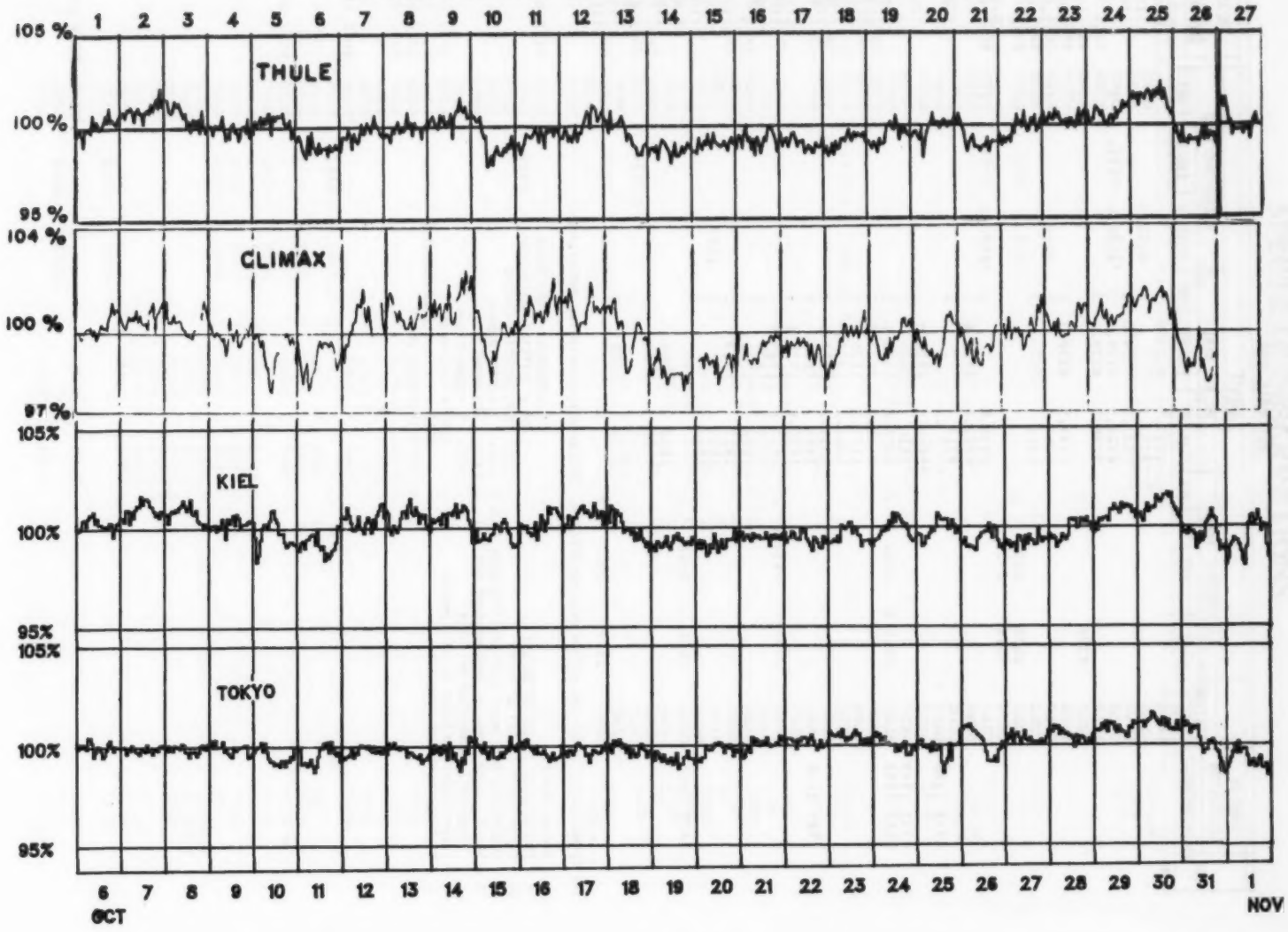
The symbols used under the column heading SPECTRAL TYPE have the following definitions:

B = Single burst
G = Small group (< 10) of bursts
GG = Large group (> 10) of burst
C = Underlying continuum (particularly with Type I)
S = Storm in the sense of intermittent but apparently connected activity
N = Intermittent activity in this period
U = U-shaped burst of Type III

RS = Reverse slope burst
DP = Drifting pairs
DC = Drifting Chains
H = Herringbone
W = Weak
P = Pulsations
CONT = Continuum
UNCLF = Unclassified activity
DCIM = Fast drift

COSMIC RAY INDICES
(Neutron Monitor)

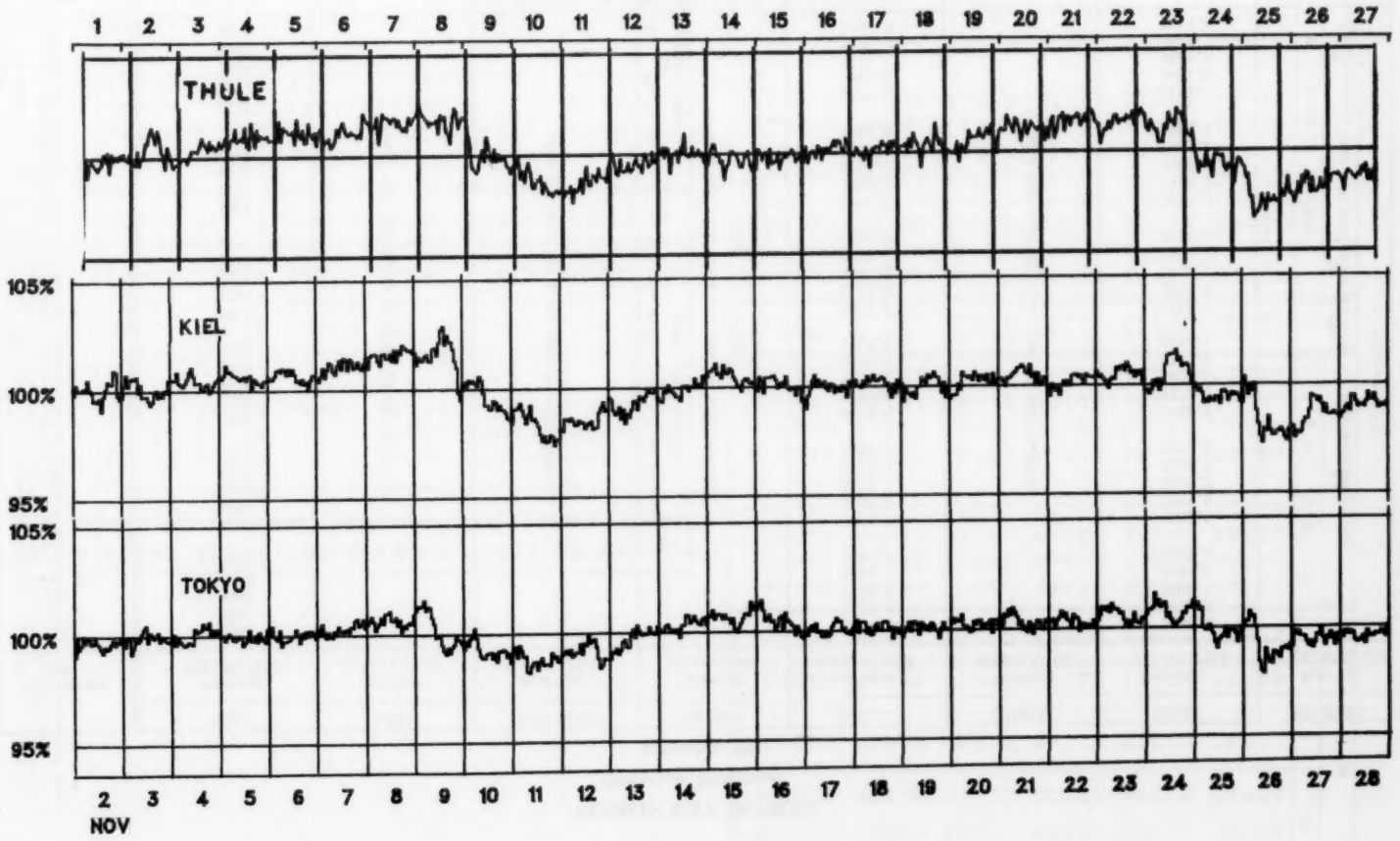
Bartels Rotation 2012 (October 1980–November 1980)



OCT

COSMIC RAY INDICES
(Neutron Monitor)

Bartels Rotation 2013 (November 1980)



COSMIC RAY INDICES

(Neutron Monitors)

NOVEMBER 1980

November 1980	THULE Average (cts/h)/100	ALERT Average (cts/h)/100	DEEP RIVER Average (cts/h)/300	CALGARY Average (cts/h/100	KIEL Average (cts/h)/100	CLIMAX Average (cts/h)/100	TOKYO Average (cts/h)/100	HUANCAYO Average (cts/h)/100
1	3960				5564.8		3500.0	
2	3951				5529.6		3490.3	
3	3969				5530.5		3498.5	
4	3974				5551.1		3503.6	
5	3995				5560.7		3499.2	
6	4003				5563.7		3501.5	
7	4003				5585.0		3511.5	
8	4024				5616.0		3523.2	
9	4025				5615.9		3509.8	
10	3950				5507.2		3476.0	
11	3903				5436.5		3459.9	
12	3903				5446.4		3472.8	
13	3938				5488.1		3491.9	
14	3958				5522.8		3513.9	
15	3946				5555.5		3526.1	
16	3949				5533.1		3518.2	
17	3963				5523.8		3504.2	
18	3962				5535.2		3506.7	
19	3971				5527.9		3505.4	
20	3977				5538.8		3511.6	
21	4002				5553.2		3514.2	
22	4014				5535.0		3513.3	
23	4014				5554.7		3522.2	
24	4011				5558.9		3528.4	
25	3943				5498.6		3498.9	
26	3875				5440.5		3473.2	
27	3885				5449.8		3483.0	
28	3906				5475.2		3487.3	
29	3905				5483.0		3498.1	
30	3834				5385.8		3464.8	
MEAN	3957				5522.2		3500.2	

Data not available at time of publication.

For less than 24-hour coverage, parentheses enclose the number of hours for which data are available. For Climax and Huancayo, parentheses enclose the number of section hours whenever the sum of both sections falls below 40 hours.

GEOMAGNETIC ACTIVITY INDICES

NOVEMBER 1980

Day	Three-Hourly Indices Kp									Ap	Cp	Three-Hourly Indices Km								Am	aa			
		1	2	3	4	5	6	7	8	Sum			1	2	3	4	5	6	7	8		N	S	M
1		3	3+	4-	4-	3+	4-	2-	2-	24	16	0.9	3-	3	3	3	3+	4-	2-	2-	28	25	27	27 25
2		2-	3	2-	3-	3-	4-	3-	1+	19+	11	0.6	1+	2+	1+	2+	3-	3+	3-	1+	18	24	16	16 25
3	Q2	1-	1+	2-	2-	2	1+	1+	1	11	5	0.2	1	1	2-	2-	2+	1+	1+	1-	10	8	12	9 13 C
4		1-	3	3-	5-	2+	2	2+	1	19-	12	0.7	0+	2	2	4+	3	2+	2+	1	21	23	20	26 18
5	Q1	2	1+	1+	1+	2-	1-	1+	1	11-	5	0.2	1+	1+	1	1+	1+	0+	2-	1+	8	9	7	10 7 CK
6	Q6	0+	2-	1+	2-	2-	2	2	2+	13	6	0.3	1-	3-	1+	2-	2	2	2	2+	14	10	20	14 17 K
7	Q3	3-	2	1	1	1+	1	1	2	12	6	0.3	2+	2	2-	1-	1	1+	1+	2+	11	13	11	13 11 CC
8	Q4	2	1+	1	1+	2+	1+	2	1+	13-	6	0.3	1+	1	1	1	2	2-	2+	1	10	13	12	11 14 CK
9	Q8A	1+	2	1	3	3-	3	2-	1+	16	9	0.5	1+	2-	1+	3-	3	3-	2-	1+	16	15	17	16 17
10		2+	3+	3	4-	4-	2-	1+	3-	22-	14	0.8	3-	3-	3-	3+	4-	2-	1+	3-	25	28	25	29 24
11	D1	3+	3+	4	4	3	3+	5-	4	30-	24	1.1	3	3	4-	3+	3-	4-	4+	3+	39	47	32	35 45
12		4	3-	3-	3	2+	1+	2-	2	20-	12	0.7	3+	2+	3-	3-	3-	1+	2-	2+	21	19	22	23 18
13	Q5	3-	1-	1+	1+	1	1	2+	2	12+	6	0.3	2+	1-	1	1+	1	1+	3-	2	12	13	13	12 15 K
14	Q8A	2-	1+	1	3	3+	3	3-	2-	18-	10	0.6	2-	1+	1+	3	3+	3	2	2-	19	19	21	13 27
15	D3	4-	4	5-	4-	3+	3+	3-	4-	29	22	1.1	3	3+	4-	4-	3	3+	2+	3	35	30	41	39 31
16		3+	3+	3	3+	3+	3	2+	3	25-	16	0.9	3	2+	2+	3	3+	3	2+	3-	25	26	20	21 26
17		3-	1	3-	2+	2+	2	3	3+	19+	11	0.6	2+	1	3-	2+	2+	2+	3-	3	20	18	20	17 22
18		3	3-	3-	4-	3+	4-	3-	3+	25	16	0.9	2+	2	3-	3+	3+	3	2+	3	26	25	28	26 27
19		3+	3+	2+	3+	4-	4-	3	3	26-	17	0.9	3-	2+	2+	3	3+	3+	3	3	29	31	34	25 39
20		2+	3	4-	3-	3+	4	4	2+	25+	17	0.9	2	2+	3-	2+	3	4-	4+	3-	29	29	24	18 36
21		2	4	4-	3-	1+	2-	2	3+	21-	13	0.7	2	4-	3+	2+	1+	2	2+	3	24	21	26	30 17
22	Q7A	3-	2+	2+	2	2-	2-	1+	2	16	8	0.4	2+	2-	2+	2-	2	1+	1+	2-	13	16	13	17 13
23	Q9A	2+	3-	2-	1-	0+	3-	4-	3-	17-	10	0.5	2	2+	1+	1-	0+	3	4-	3-	19	17	24	14 28
24		3	3+	3	2	2-	2	2+	3+	21-	12	0.7	3-	3+	3-	2-	2-	3-	2+	4-	24	21	26	26 21
25		3	3+	3+	2+	3+	3	3+	3+	25	16	0.9	3	3-	3+	2+	3+	3+	4-	3+	32	29	39	27 41
26	D5	4	4+	4-	4	4+	3-	3-	2	28-	21	1.1	4-	5-	3+	4-	4	3	3-	2	43	29	44	53 21
27		4	3	4-	3	3	4-	4-	3	27	19	1.0	3	2+	3	3-	3-	4-	3	3	29	38	27	31 34
28	D4	5-	4-	4	4+	4-	3-	2+	3+	29-	23	1.1	3+	3+	4	4-	4-	3-	3-	3	37	34	44	53 25
29		3	3+	4	3	3	2	3	3+	25-	16	0.9	3-	3-	3+	3	3+	3-	3-	3	28	29	25	29 25
30	D2	5-	3+	3-	3-	2+	4	4+	5-	29-	24	1.1	4	3	2	3-	3-	4+	4	4	42	44	44	32 56
										Mean	13	0.71									23.6	23.4	24.5	24.2

Day	Three-Hourly Indices Kn								An	Three-Hourly Indices Ks								As
	1	2	3	4	5	6	7	8		1	2	3	4	5	6	7	8	
1	3-	3-	3	3	4-	4-	2-	1+	28	2+	3	3	3	3	4-	2	2	28
2	1	3-	1+	2	3-	3+	3-	1	17	2-	2	2-	3-	3-	4-	3-	1+	20
3	1	1	2	2-	3-	1+	1+	0+	10	1	1-	1+	2-	2+	1+	1+	1	9
4	1-	2	2+	4+	3	2+	3-	1-	23	0	2-	2-	4	3	2+	2	1+	19
5	1+	1	1	1+	2-	1-	1+	1	8	2-	2-	1	1	1	0+	2-	1+	8
6	0+	2-	2-	2-	2-	2	2-	2-	12	1+	3	1+	2-	2	2	2	3	17
7	2	2	1+	1-	1+	1+	1+	2	11	3-	2	2-	1-	1	1+	1	2+	12
8	1	1-	1	1+	2	2-	2	1	10	2-	1+	1+	1-	2	2-	2+	1	11
9	1+	2-	1	2+	3	3	2	1+	15	1+	1+	2-	3-	3	3-	2-	1+	17
10	2	3-	2+	3+	4-	2-	1+	3-	23	3	3-	3	3	4	2-	1+	3	27
11	3	3	3+	3+	3-	3	5-	4-	38	3	3	4-	3+	2+	4+	4	3	40
12	3	2	3	3	3-	2-	1+	2	20	3+	3-	3-	3-	3-	1+	2	3-	21
13	2+	0+	1	1	1+	1+	3-	2	11	3-	1	1	2-	1-	2-	3-	2+	13
14	1	1-	1	3-	3	3	2	2-	16	2	2-	1+	3+	3+	3+	2	2	22
15	3	3+	4-	4-	3	3	2+	3	34	3	4-	4-	4-	3	4-	3-	3+	37
16	3-	3	3-	3	3+	3	2	2+	26	3	2-	2+	3	3	3	2+	3-	24
17	2	1	3-	2	2	2+	3-	3-	18	3-	1+	3	3	3-	2+	3	3	23
18	2-	2	3-	3	3+	3+	2	3-	24	3-	2	3-	4-	3+	3	2+	3	28
19	3-	2	2	3+	3+	4-	3	3	29	3-	3-	3-	3-	3+	3+	3	3	29
20	2-	2+	3	2+	3+	4-	4-	2	28	2+	2+	3-	2+	3-	4-	5-	3	31
21	2-	4-	3	2	1+	2	2	3-	20	3-	4	4-	3-	1+	2+	2+	4-	28
22	2	2-	2	2-	2-	1+	1+	2-	12	2+	2	3-	2-	2+	1+	1+	2	15
23	2	2-	1+	1-	0	3-	3+	2+	15	2+	3-	2-	1	1-	3	4-	3	21
24	3-	3-	3-	2-	2-	2+	2	3	20	3-	4-	3	2	2-	3-	3-	4+	29
25	2+	2+	3-	2+	3	3	4-	3	26	3+	3	4-	2+	3+	3+	4-	4-	39
26	3+	4	3+	4-	4+	3	2+	2+	39	4	5+	4-	4-	4	3	3-	2-	47
27	3+	2	3-	3-	3-	4-	3+	3	30	3-	3-	3	3-	3	4-	3	3	29
28	4-	3	3+	4-	4-	3-	2+	3	34	3	4-	4+	4	3+	3	3-	3+	40
29	3-	3-	3+	3+	4-	3-	3-	3	30	3-	2+	3+	3-	3-	3	3-	3	26
30	4-	3-	2-	3-	3-	4	4	4+	37	5-	3	2	3	3	5-	4+	4	46
								Mean	22.1									25.2

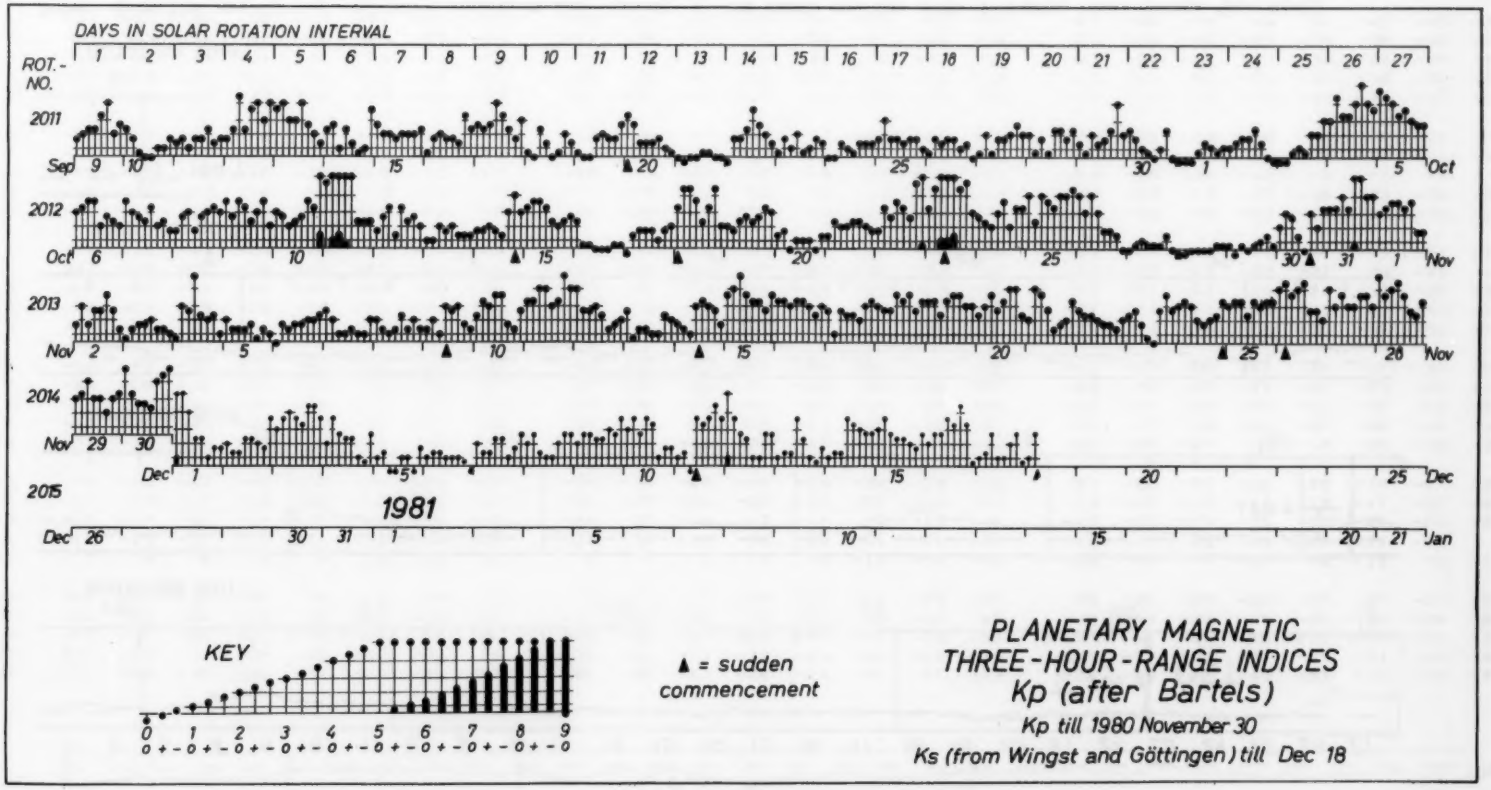
Quiet days (Q) and disturbed days (D), geomagnetic planetary three-hour-range indices (Kp) (integers alone are equivalent to those normally given with a small zero), magnetic character figures (Cp), and average amplitude (Ap) (unit 2 nT) prepared by Geophysikalisches Institut at the University of Göttingen, F.R. of Germany for the International Service of Geomagnetic Indices. Ten most quiet days [Q1-Q0(10)] and five most disturbed days [D1-D5] are ordered from most quiet or disturbed, respectively. A or K means "not really quiet" (A = "Ap>6", K = "Ap≤6 but one Kp>30 or two Kp values≥3-"]. An asterisk means "not really disturbed" (Ap<20).

Geomagnetic three-hourly indices Km, Kn, Ks, daily mean values Am, An, As (unit 1nT), and indices aa are prepared by M. Menvielle of the Institut de Physique du Globe, Paris, France. For aa indices daily north (N) and south (S) values, and half-daily antipodal mean (M) values are given. Quiet 24-hour and 48-hour intervals centered on 1200 UT are indicated for really quiet as C and for quiet but with some slightly disturbed three-hour intervals as K. The first hundred years series of aa is in IAGA Bulletin No.33, and complementary data are in IAGA Bulletin No.39.

DAILY AVERAGE INDICES Ap

	1979	1980										
DAY	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV
1	9	24	10	3	4	8	22	5	4	7	2	16
2	11	12	9	3	3	4	7	3	7	4	5	11
3	9	18	3	5	7	3	9	4	20	12	5	5
4	16	16	4	5	11	4	5	7	8	12	26	12
5	7	12	3	7	7	7	4	15	4	10	22	5
6	6	8	33	9	28	12	16	10	21	9	14	6
7	4	5	12	7	18	9	27	13	10	10	12	6
8	10	6	17	6	17	7	23	14	4	8	12	6
9	7	3	11	7	20	18	14	8	9	12	16	9
10	5	3	4	4	22	8	33	4	9	4	22	14
11	5	11	4	4	30	38	59	10	8	6	40	24
12	4	4	3	1	28	23	32	5	8	18	11	12
13	4	23	2	7	18	14	27	9	6	16	5	6
14	4	9	18	5	10	17	10	9	6	8	11	10
15	9	6	33	2	20	6	5	6	5	8	15	22
16	10	9	40	4	12	3	9	6	26	8	3	16
17	13	13	6	5	11	3	3	6	10	14	5	11
18	7	4	10	4	4	4	3	30	18	4	21	16
19	6	4	10	10	5	8	8	16	28	6	11	17
20	4	6	6	4	6	5	6	9	10	7	4	17
21	4	6	4	18	5	4	6	14	8	2	7	13
22	15	5	4	16	9	6	6	5	10	8	23	8
23	3	5	9	6	6	11	6	4	5	5	44	10
24	7	5	6	4	7	12	13	7	4	4	14	12
25	2	7	13	6	9	34	8	46	5	7	24	16
26	10	6	14	30	5	7	15	26	12	5	13	21
27	12	24	14	7	5	3	3	15	22	6	3	19
28	16	27	10	7	4	4	3	14	4	6	2	23
29	32	26	7	8	6	6	5	6	4	9	3	16
30	20	10		11	8	10	8	8	6	5	10	24
31	9	5		21		16		6	7		30	
MEAN	9	10	11	8	11	10	13	11	10	8	14	13

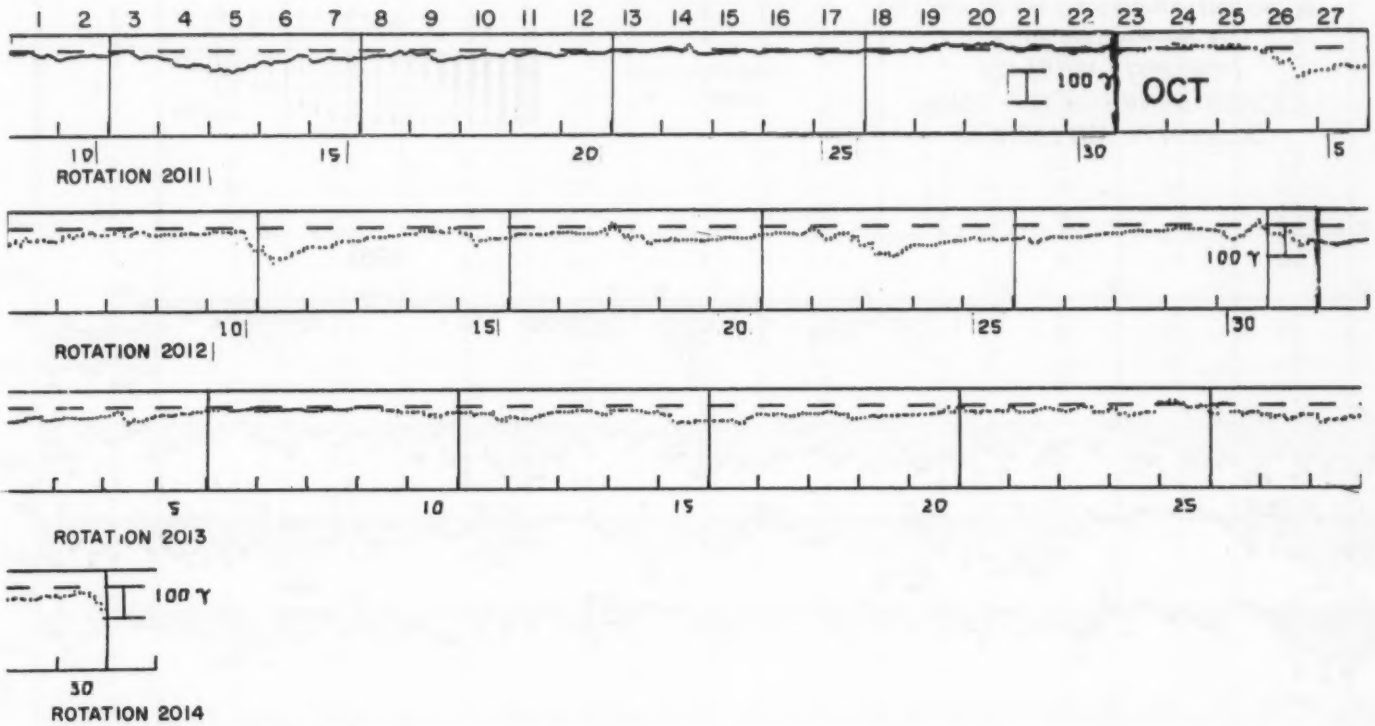
GEOMAGNETIC ACTIVITY INDICES



GEOMAGNETIC ACTIVITY INDICES

Hourly Equatorial Dst

by Bartels Rotation



Note: Both the sensitivity indicator placed on the last day of the month and the zero reference level change from month to month.

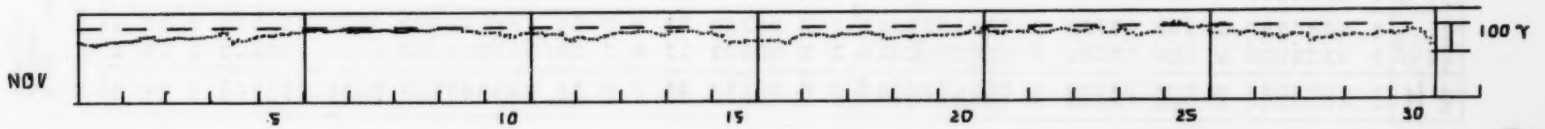
HOURLY EQUATORIAL Dst VALUES (PROVISIONAL)

NASA/GODDARD SPACE FLIGHT CENTER

NOVEMBER 1980

(Time-UT) (Units-Gammas)

DAY	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24
1	-50	-52	-53	-56	-59	-57	-61	-57	-55	-64	-65	-56	-56	-52	-52	-53	-47	-46	-46	-46	-46	-45	-45	-43
2	-43	-43	-42	-42	-46	-43	-39	-38	-41	-38	-31	-31	-34	-31	-28	-32	-36	-26	-40	-45	-38	-38	-38	-37
3	-35	-35	-36	-34	-30	-31	-31	-34	-35	-35	-38	-39	-36	-33	-33	-32	-32	-32	-31	-31	-30	-27	-27	-28
4	-27	-25	-25	-22	-16	-13	-16	-20	-25	-38	-48	-58	-48	-39	-46	-48	-45	-41	-41	-38	-35	-32	-32	-31
5	-26	-26	-26	-23	-24	-28	-31	-30	-27	-25	-22	-20	-18	-18	-22	-22	-22	-18	-14	-14	-16	-16	-17	-11
6	-12	-15	-12	-9	-11	-15	-10	-5	-8	-6	-7	-15	-13	-15	-16	-11	-12	-10	-12	-8	-9	-7	-2	-6
7	-16	-14	-10	-16	-19	-15	-12	-11	-14	-14	-11	-11	-12	-11	-10	-11	-11	-11	-7	-9	-8	-12	-11	-16
8	-17	-17	-19	-15	-15	-15	-15	-15	-10	-9	-12	-10	-12	-14	-12	-12	-13	-14	-15	-12	-9	-7	-6	-4
9	-1	-2	-3	-4	-4	-3	-3	-7	-9	-8	-8	-4	-6	-16	-12	-13	-13	-17	-17	-17	-22	-23	-24	-23
10	-21	-20	-18	-19	-20	-19	-16	-17	-20	-30	-36	-26	-24	-23	-38	-33	-28	-28	-24	-20	-19	-18	-22	-24
11	-17	-19	-23	-25	-25	-18	-17	-20	-29	-34	-25	-22	-28	-26	-25	-25	-23	-17	-31	-41	-46	-45	-51	-46
12	-37	-35	-32	-34	-39	-42	-42	-44	-42	-44	-41	-47	-39	-34	-35	-32	-28	-28	-27	-23	-22	-20	-21	-17
13	-19	-21	-21	-22	-24	-23	-22	-20	-16	-15	-13	-14	-16	-17	-16	-16	-16	-20	-25	-26	-28	-30	-34	-29
14	-26	-24	-15	-15	-18	-18	-18	-15	-14	-15	-14	-17	-15	-19	-14	-17	-21	-21	-25	-28	-26	-22	-25	-20
15	-17	-21	-30	-32	-36	-38	-29	-33	-52	-58	-61	-51	-50	-52	-53	-58	-59	-52	-46	-46	-50	-52	-52	-49
16	-48	-48	-52	-51	-48	-46	-50	-51	-51	-53	-48	-44	-49	-55	-56	-59	-62	-57	-49	-41	-38	-37	-34	-29
17	-26	-26	-30	-32	-34	-35	-36	-37	-27	-26	-23	-28	-29	-35	-38	-37	-39	-39	-32	-31	-27	-23	-31	-26
18	-27	-30	-32	-30	-30	-29	-29	-28	-22	-20	-20	-26	-21	-24	-32	-34	-32	-31	-34	-34	-41	-46	-48	-45
19	-40	-40	-43	-38	-38	-35	-35	-33	-35	-36	-43	-36	-32	-35	-35	-33	-37	-37	-34	-30	-35	-30	-30	-31
20	-31	-33	-30	-30	-35	-34	-28	-29	-31	-29	-28	-27	-27	-27	-26	-22	-25	-25	-17	-6	-14	-28	-26	-20
21	-10	-13	-13	-10	-22	-24	-22	-24	-24	-30	-27	-22	-18	-20	-24	-25	-23	-22	-20	-16	-22	-24	-27	-21
22	-17	-10	-11	-13	-22	-28	-29	-28	-25	-27	-28	-29	-20	-17	-16	-13	-13	-12	-10	-11	-13	-17	-21	-20
23	-23	-18	-23	-27	-24	-20	-16	-15	-14	-12	-9	-7	-7	-9	-10	-8	-15	-29	-25	-26	-27	-24	-24	-23
24	-16	-13	-11	-17	-24	-36	-34	-27	-32	-38	-39	-35	-33	-28	-31	-30	-26	-25	-23	-23	-29	-25	-23	0
25	7	6	6	1	0	2	12	11	1	4	0	-1	-2	-10	-14	-13	-10	-7	-9	-14	-2	-10	-9	-10
26	-25	-39	-29	-29	-8	2	-6	5	4	-4	-7	-28	-27	-27	-25	-28	-32	-38	-29	-25	-23	-22	-23	-23
27	-26	-35	-38	-32	-30	-35	-44	-44	-37	-34	-34	-37	-41	-48	-52	-45	-39	-42	-39	-36	-31	-30	-34	-32
28	-31	-36	-36	-31	-45	-48	-61	-58	-49	-45	-50	-53	-47	-45	-46	-50	-50	-45	-39	-36	-36	-45	-45	-38
29	-35	-37	-42	-39	-35	-33	-33	-35	-35	-41	-38	-39	-43	-40	-39	-38	-35	-33	-29	-26	-27	-33	-36	-33
30	-25	-29	-37	-36	-27	-30	-30	-28	-25	-23	-13	-20	-24	-21	-21	-23	-26	-33	-35	-42	-53	-57	-74	-73



PRINCIPAL MAGNETIC STORMS

NOVEMBER 1980

OBS. 3 letter code	GEOMAG-NETIC LATI-TUDE	COMMENCEMENT DAY	hr min (UT)	TYPE	SC - AMPLITUDES D(')	H(γ)	Z(γ)	MAXIMUM 3 HOUR - INDEX K DAY (3 HOUR PERIOD)	K	RANGES D(')	H(γ)	Z(γ)	UT END DAY	HOUR
HUA	00.6S	01	1012	..	..	..	..	01(5,6,7)	5	7	213	65	01	22
JAI	17.3N	04	0600	..	..	..	..	04(3,4)	-	3	129	36	04	20
SHL	14.6N	04	0600	..	..	..	..	04(3,4)	-	3	169	28	04	20
UJJ	13.5N	04	0600	..	..	..	..	04(3,4)	-	2	137	31	04	20
ABG	09.5N	04	0600	..	..	..	..	04(3,4)	5	4	140	25	04	20
HYB	07.6N	04	0400	..	..	..	..	04(4)	5	3	162	18	04	21
ANN	01.5N	04	0600	..	..	..	..	04(3,4)	4	2	165	41	04	20
TRD	01.2S	04	0600	..	..	..	..	04(3,4)	-	1	136	47	04	20
FRD	49.6N	08	1335	SC*	3	-23	2	08(5) 10(5) 11(3,7,8) 12(1,4)	4	21	105	28	12	
HYB	07.6N	09	1122	SC	- .2*	12	- 1	10(5) 11(3,7)	4	4	109	21	12	15
HUA	00.6S	09	1122	SC	1	13	3	10(5)	6	8	227	54	10	23
KGL	56.5S	09	1122	SCA	10	26	6	10(1)	4	--	--	--	10	15
JAI	17.3N	10	0800	..	..	..	..	10(5) 11(3,7)	-	5	75	24	12	14
SHL	14.6N	10	0800	..	..	..	..	10(5) 11(3,7)	-	3	98	25	12	14
UJJ	13.5N	10	0800	..	..	..	..	10(5) 11(3,7)	-	4	83	27	12	14
ABG	09.5N	10	0800	..	..	..	..	10(5) 11(3,7)	4	5	90	33	12	14
ANN	01.5N	10	0800	..	..	..	..	10(5) 11(3,7)	4	4	130	57	12	14
HUA	00.6S	11	0025	..	..	..	..	11(6,7)	6	10	357	41	12	03
HYB	07.6N	14	1112	SC	- .2	4	- 1		-	--	--	--		
NEW	55.1N	14	1153	SC*	2	7	..	15(3,4)	5	29	74	123	16	18
JAI	17.3N	14	1100	..	..	..	..	14(6) 15(3,4,5,6)	-	3	89	20	16	01
SHL	14.6N	14	1100	..	..	..	..	14(6) 15(3,4,5,6)	-	4	98	25	16	01
UJJ	13.5N	14	1100	..	..	..	..	14(6) 15(3,4,5,6)	-	3	95	23	16	01
ABG	09.5N	14	1100	..	..	..	..	14(6) 15(3,4,5,6)	4	3	107	21	16	01
HYB	07.6N	14	1152	SC	- .3	12	- 1	15(3,6)	4	2	115	31	16	19
ANN	01.5N	14	1100	..	..	..	..	14(6) 15(3,4,5,6)	4	3	175	76	16	01
HUA	00.6S	14	1153	SC*	1	60	3	14(6)	6	6	222	35	15	24
KGL	56.5S	14	1153	SC*	10	36	8	15(2,4,6,8) 16(1,6)	4	--	--	--	16	18
COL	64.6N	15	02--	..	..	..	..	15(4,6)	6	155	1260	560	16	19
HYB	07.6N	18	0300	..	..	..	..	19(6)	4	2	94	27	20	00
JAI	17.3N	19	0900	..	..	..	..	19(6) 20(7)	-	3	79	28	21	11
UJJ	13.5N	19	0900	..	..	..	..	19(6) 20(7)	-	3	82	31	21	11
ABG	09.5N	19	0900	..	..	..	..	19(6) 20(7)	4	3	93	33	21	11
ANN	01.5N	19	0900	..	..	..	..	19(6) 20(7)	4	5	122	70	21	11
HUA	00.6S	19	2115	SC	1	26	3	20(6,7)	6	8	240	37	20	23
HYB	07.6N	20	0300	..	..	..	..	20(7)	5	3	98	29	22	00
GUA	04.0N	20	1537	..	..	..	..	20(7)	5	--	90	30	21	06
KGL	56.5S	24	2003	SC	--	--	--	25(2)	4	--	--	--	25	12
KGL	56.5S	26	0421	SCA	-100	35	5	26(2) 28(5)	5	--	--	--	29	00
HON	21.1N	23	2257	SC	--	17	5	25(7) 26(1,2,4)	4	6	81	31	26	13
HYB	07.6N	23	0100	..	..	..	..	23(6,7)	4	4	101	16	24	10
FRD	49.6N	24	2258	..	1	-20	- 1	26(5) 01(5)	5	21	114	41	02	
JAI	17.3N	24	2300	..	..	..	..	25(7) 26(2)	-	3	122	23	26	18
UJJ	13.5N	24	2300	..	..	..	..	25(7) 26(2)	-	3	128	29	26	18
ABG	09.5N	24	2300	..	..	..	..	25(7) 26(2)	4	4	127	43	26	18
HYB	07.6N	24	2257	SC	- .4	14	- 1	26(2)	6	3	140	33	26	20
GUA	04.0N	24	2258	SC	..	18	- 6	26(1)	5	--	140	30	26	04
ANN	01.5N	24	2300	..	..	..	..	25(7) 26(2)	-	5	--	74	26	18
HUA	00.6S	24	2257	SC	1	29	4	26(5)	6	10	373	90	26	22
GNA	43.2S	24	2257	SC	- 2	6	- 6	25(5) 26(1)	5	25	90	140	26	18
NEW	55.1N	26	0422	SC	4	40	..	28(4)	5	25	127	149	30	06
HYB	07.6N	26	0421	SI	- .7	49	- 7		-	--	--	--		
GUA	04.0N	26	0422	SC*	..	63	-19	26(2)	6	--	140	30	26	18
PMG	18.6S	26	01--	..	..	..	..	26(1,4)	5	5	120	50	26	20
COL	64.6N	27	07--	..	..	..	..	28(3,4) 29(3,4)	6	186	1390	890	29	23
JAI	17.3N	27	0500	..	..	..	..	27(5,6) 28(3,4,5)	-	5	107	20	28	17
UJJ	13.5N	27	0500	..	..	..	..	27(5,6) 28(3,4,5)	-	4	110	20	28	17
ABG	09.5N	27	0500	..	..	..	..	27(5,6) 28(3,4,5)	4	5	118	34	28	17
HYB	07.6N	27	0000	..	..	..	..	27(5)	5	4	132	31	28	17
ANN	01.5N	27	0500	..	..	..	..	27(5,6) 28(3,4,5)	-	5	--	77	28	17
HYB	07.6N	28	2100	..	..	..	..	30(6,7)	5	3	111	29	01	16
UJJ	13.5N	29	2300	..	..	..	..	30(6,7)	-	3	84	16	01	16
ABG	09.5N	29	2300	..	..	..	..	30(6,7)	4	3	89	23	01	16
GUA	04.0N	30	2023	..	..	..	..	01(1)	5	--	50	30	01	11

REPORTS WERE RECEIVED FROM THE FOLLOWING OBSERVATORIES:

ALIBAG ANNAMALAINAGAR COLLEGE FREDERICKSBURG GNANGARA GUAM HERMANUS HONOLULU HUANCAYO HYDERABAD JAIPUR KERGUELEN NEWPORT PORT MORESBY SAN JUAN SHILLONG SITKA TOOLANGI TRIVANDRUM UJJAIN

SUDDEN COMMENCEMENTS AND SOLAR FLARE EFFECTS

NOVEMBER 1980

PRELIMINARY REPORT ON RAPID MAGNETIC VARIATIONS

The meaning of the station symbols is given in the IAGA-Bulletin nr. 32h, page 106-116.
Times of ssc are mean values.

Sudden commencements followed by a magnetic storm or a period of stormines (ssc)

09 1122: A: VIC MPO KGL; B: SOD FUR; C: WNG NGK HAD EBR CZT DUM
(si: A: COI; B: DOB)

14 1153 A: SOD VIC FUR DOU KGL; B: WNG TOL MPO CZT; C: NGK HAD
EBR HAZ DUM

24 2257 A: VIC FRD MPO; B: WNG DOU FUR TOL CZT; C: NGK HAD MMB
KAK KNY DUM

26 0422 A: VIC FUR MPO CZT KGL DUM; B: WNG HAD DOU EBR HAZ;
C: KNY (si: C: TOL)

Solar-flare effects (sfe)

Effects confirmed by ionospheric or solar observations are underlined.

03 0159 - 0225 KNY

03 1356 - 1412 MPO

05 1129 - 1140 NGK

05 1343 - 1428 WNG EBR (bp:A: TOL)

06 0339 - 0530 MMB KAK HAZ KNY

07 0202 - 0250 KNY

07 0958 - 1010 NGK

08 1335 - 1420 WNG NGK HAD EBR TOL
(ssc: A: FRD; B: FUR - si: A:
COI MPO)

10 1138 - 1215 WNG

11 0909 - 0924 WNG

12 0447 - 0525 MMB KAK HAZ KNY

13 0509 - 0527 KAK

14 1113 - 1133 NGK TOL (ssc: C: FUR)

14 1221 - 1244 WNG

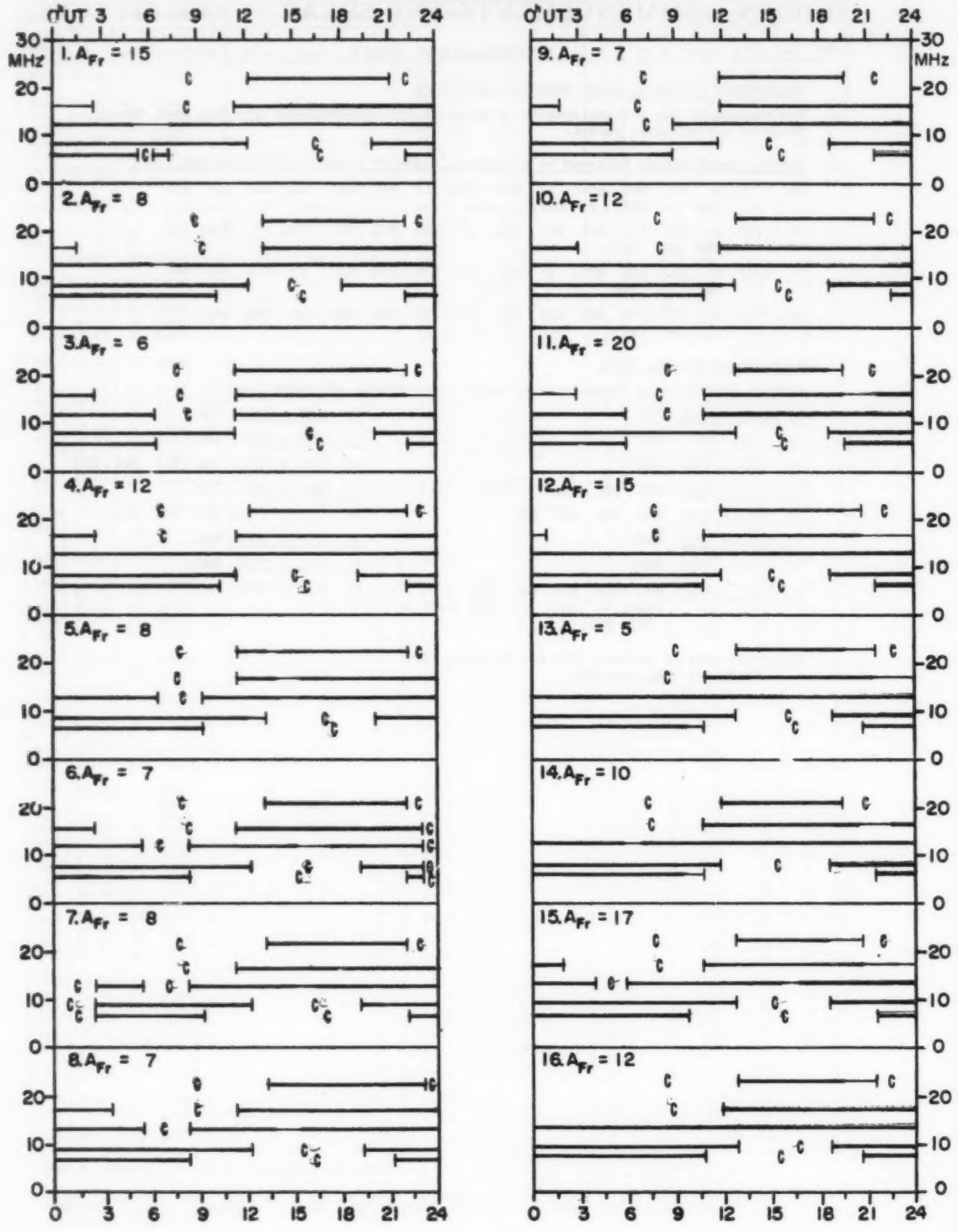
15 0711 - 0736 WNG

21 1606 - 1630 MPO

Note: DST-data of October 1980 and November 1980
have not been received.

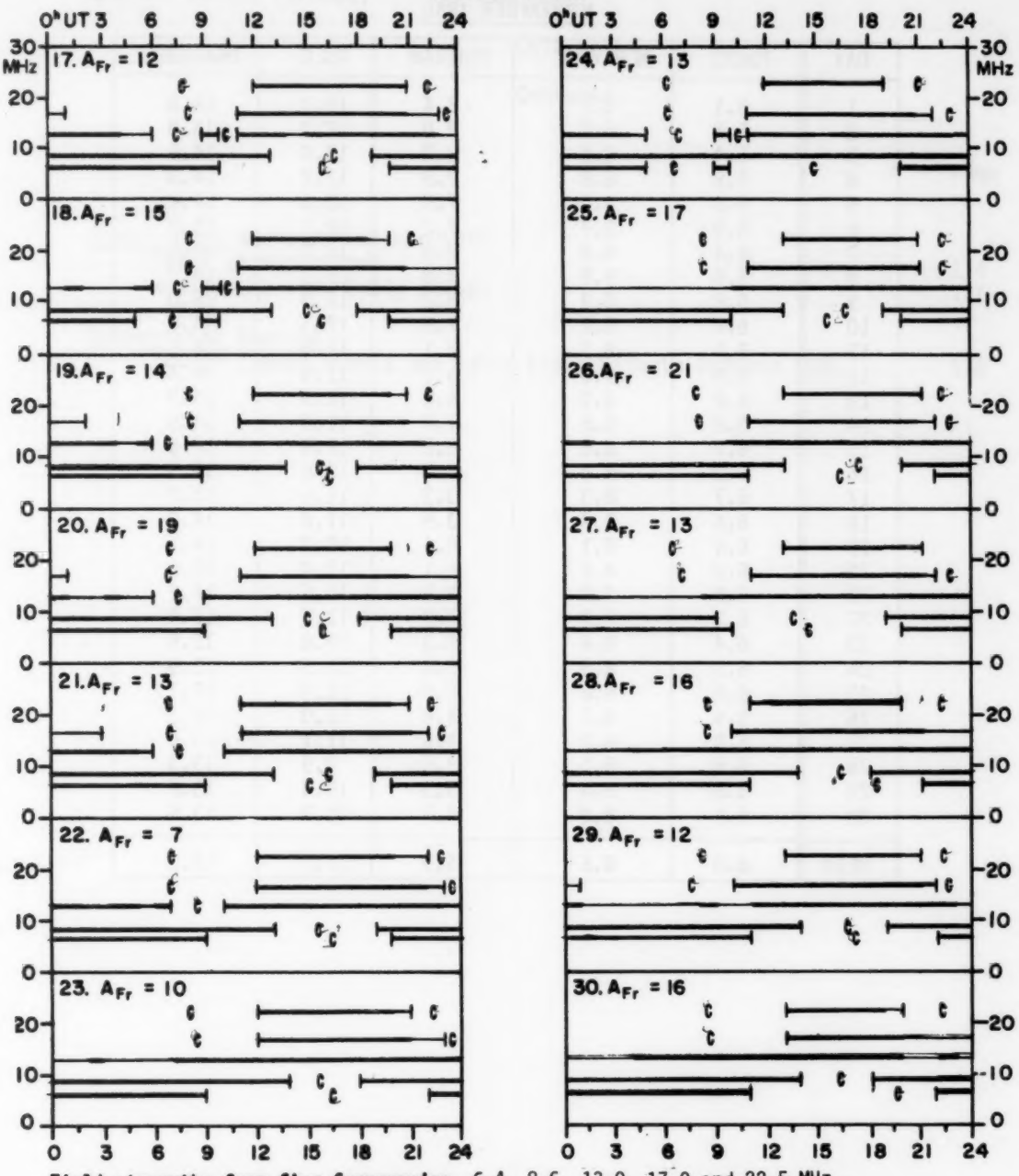
TRANSMISSION FREQUENCY RANGES -- NORTH ATLANTIC PATH

NOVEMBER 1980



TRANSMISSION FREQUENCY RANGES -- NORTH ATLANTIC PATH

NOVEMBER 1980



Field strengths from five frequencies, 6.4, 8.6, 13.0, 17.0 and 22.5 MHz observed on a Lüchow-New York circuit are represented above. Heavy solid lines represent field strengths ≥-12 dB above 1 μv/m (transmitter power reduced to 1 kW). Observed field strengths between -12 dB above 1 μv/m and -40 dB above 1 μv/m are represented by the fine line.

Adapted from Observations by Deutsche Bundespost

RADIO PROPAGATION QUALITY INDICES

NOVEMBER 1980

DAY	TOKYO	NEW YORK	TEHERAN	OSLO	BRACKNELL
1	5.1	8.7	8.4	12.1	14.8
2	5.8	8.7	9.0	12.3	15.0
3	5.4	8.6	8.3	12.0	14.6
4	5.8	8.8	7.9	12.2	14.3
5	5.6	8.6	7.5	12.0	14.1
6	5.9	8.7	7.2	12.1	13.9
7	6.4	8.9	7.5	12.2	14.8
8	5.5	8.9	7.8	12.2	14.7
9	5.8	8.9	8.2	12.3	15.0
10	5.8	9.2	7.8	12.3	14.8
11	5.4	8.7	6.1	12.5	14.5
12	5.9	9.0	5.1	11.9	14.4
13	6.2	8.9	5.8	12.3	14.9
14	6.8	8.6	7.0	11.8	14.5
15	6.7	8.5	8.2	11.9	14.6
16	6.0	8.3	6.3	10.8	14.0
17	6.7	8.3	3.3	11.6	13.7
18	6.6	7.8	3.9	11.8	14.0
19	6.4	8.1	5.6	10.9	14.1
20	5.8	8.2	5.1	11.4	14.5
21	6.0	8.9	3.2	11.6	14.2
22	6.2	8.7	3.2	11.7	13.9
23	6.4	8.4	3.3	12.0	13.9
24	6.3	8.5	5.0	11.3	13.9
25	6.0	8.6	5.0	11.3	13.7
26	5.9	8.7	4.4	11.0	14.2
27	5.8	8.3	4.6	11.1	13.9
28	5.8	8.1	3.0	9.9	13.3
29	5.6	8.4	3.3	10.4	13.6
30	6.1	8.2	4.7	11.3	13.5
MEAN	6.0	8.6	5.9	11.7	14.2

SGD 437 Part I (Prompt)

LATE DATA

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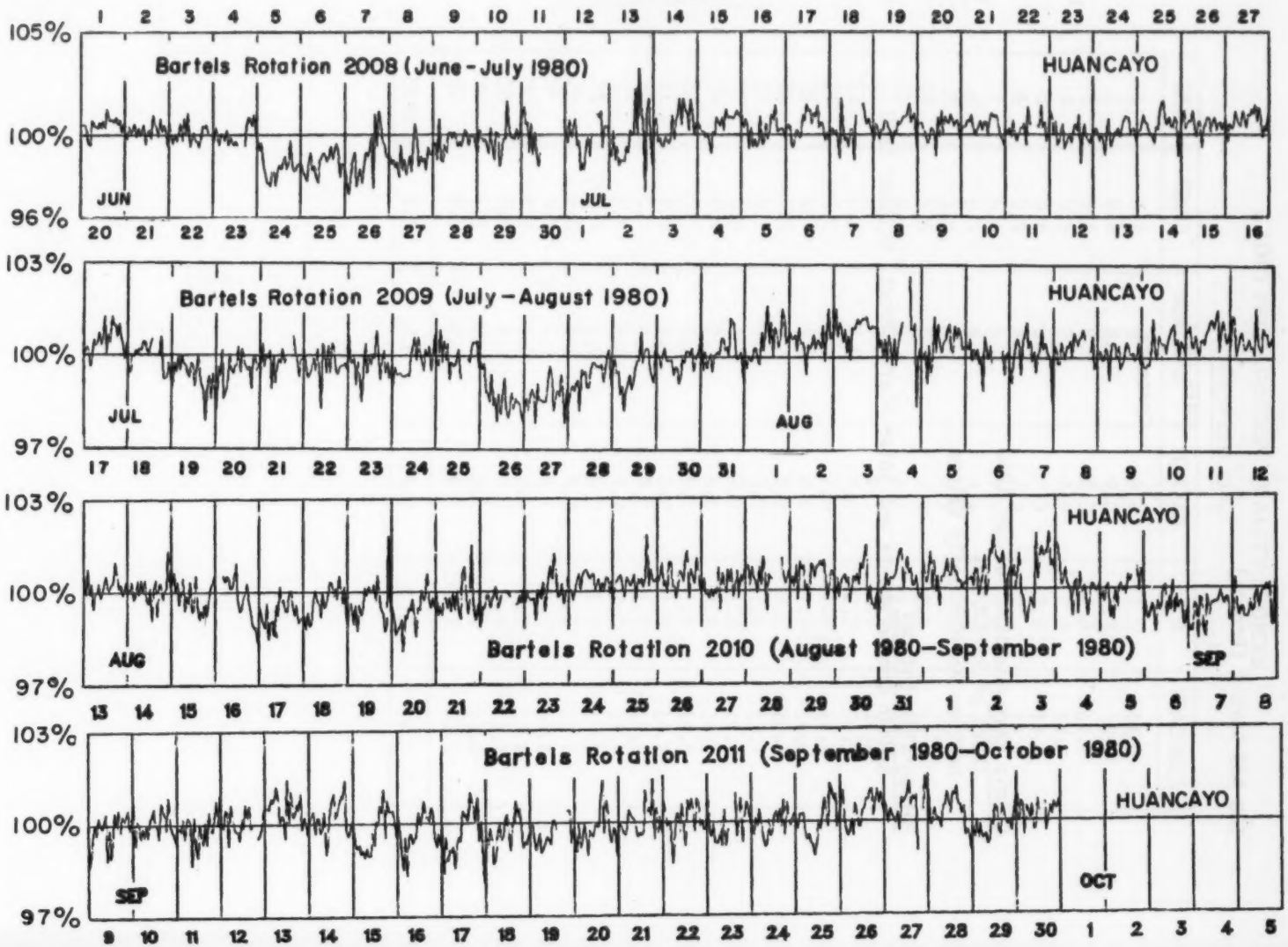
COSMIC RAY INDICES
(Neutron Monitors)

HUANCAYO



COSMIC RAY INDICES
(Neutron Monitors)

Day	JULY 1980 HUANCAYO Average (cts/h)/100	AUGUST 1980 HUANCAYO Average (cts/h)/100	SEPTEMBER 1980 HUANCAYO Average (cts/h)/100	SEPTEMBER 1980 CLIMAX Average (cts/h)/100
1	1724.7	1737.9	1740.3	3752.5
2	1723.7	1738.3	1743.1	3759.5
3	1734.4	1745.4	1740.9	3764.5
4	1734.9	1738.2	1735.7	3748.1
5	1730.3	1736.3	1732.4	3727.5
6	1734.3	1730.8 (38)	1723.0	3688.1
7	1730.7	1731.5	1720.8	3673.9
8	1734.3	1735.0	1725.3	3675.8 (30)
9	1732.5	1731.4	1725.3	---
10	1734.4	1735.5	1728.1	---
11	1731.9	1742.8	1725.8	---
12	1727.0	1739.6	1728.6	---
13	1729.0	1736.5	1735.8	---
14	1734.2	1734.2	1731.5	---
15	1735.5	1730.9	1723.7	---
16	1738.5	1729.8	1723.0	3745.5
17	1737.3	1721.7	1722.1	3735.8
18	1728.4	1727.7	1722.5	3729.4
19	1717.7	1727.1	1721.6 (38)	3744.7
20	1721.2	1721.9	1723.9	3754.7
21	1726.3	1728.8	1728.7	3762.9
22	1724.4	1728.3	1729.1	3784.9
23	1725.1	1733.3	1726.8	3769.0
24	1725.8	1738.1	1727.3	3766.6
25	1728.6	1738.8	1728.5	3777.9
26	1706.3	1740.8	1734.1	3784.4
27	1707.0	1736.0	1736.1	3799.1
28	1718.1	1740.9	1732.7	3790.9
29	1721.6	1741.1	1725.6	3756.9
30	1727.3	1736.7	1733.0	3761.1
31	1732.8	1738.9		
MEAN	1727.7	1734.7	1729.2	3751.6

For less than 24-hour coverage, parentheses enclose the number of hours for which data are available. For Climax and Huancayo, parentheses enclose the number of section hours whenever the sum of both sections falls below 40 hours.

SUDDEN COMMENCEMENTS AND SOLAR FLARE EFFECTS

October 1980

PRELIMINARY REPORT ON RAPID MAGNETIC VARIATIONS

The meaning of the station symbols is given in the IAGA-Bulletin nr. 32h, page 106-116.
Times of ssc are mean values.

Sudden commencements followed by a magnetic storm or a period of storminess (ssc)

14	1953	A:	NUR WIT VIC FUR AQU EBR COI TOL FRD MPO DUM;
		B:	WNG HAD MMB KGL; C: NGK KAK HAZ KNY CZT (si: A: DOU)
18	0114	A:	DOU FUR COI MPO; B: WNG WIT MMB AQU EBR TOL HAZ KGL DUM;
		C:	NGK HAD VIC KAK KNY CZT
22	1014	A:	DOU COI; B: SOD WNG; C: WIT FUR TOL
30	1520	A:	SOD ESK WNG DOU VIC FUR COI FRD MPO KGL; B: WIT HAD MMB
			AQU EBR TOL KNY; C: NGK KAK HAZ CZT DUM

Solar-flare effects (sfe)

Effects confirmed by ionospheric or solar observations are underlined.

02	0920 - 0939	NGK (si: C: MPO)
07	0521 - 0533	MPO
07	2306 - 2354	KAK HAZ
08	0641 - 0651	MPO
13	0415 - 0445	MMB KAK HAZ KNY
14	0604 - 0650	MMB KAK HAZ KNY
14	0807 - 0819	WNG
26	1151 - 1200	MPO
29	1138 - 1148	MPO

Note: DST-data of September 1980 and October 1980
have not been received.